

2005 Defense Economics Conference:

Perspectives on the Military Medical Mission



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Office of the Secretary of Defense
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Institute for Defense Analyses



September 22, 2005

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PREFACE

Since 1991, the Office of the Secretary of Defense, Program Analysis and Evaluation (OSD PA&E), and the Institute for Defense Analyses (IDA) have conducted a conference on defense economics. In 2005, the conference was oriented towards the military medical mission. It provided an opportunity to consider the future of, international perspectives on, and alternatives to the current military medical force structure. The 2005 conference was held at IDA on September 22, 2005.

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WELCOME

**DR. STEPHEN BALUT
DR. JERRY PANNULLO**

DR. STEPHEN BALUT (Director, Cost Analysis and Research Division, Institute for Defense Analyses): Good morning, good morning. My name is Steve Balut. I'm one of the directors here at IDA. Welcome to the Institute for Defense Analyses. We call it IDA for short. Also, welcome especially to those of you who traveled so far. Congratulations. I hope you've gotten over your jet lag and are ready for this.



Welcome to the Defense Economics Symposium. I want to tell you a little bit about the symposium.

It was initiated in the mid-1980s by a gentleman who will be here, David Chu, with the assistance of Dr. David McNicol. And the head of this symposium has always been director of what is now the Economic and Manpower Analysis Division of the Office of Program Analysis and Evaluation in the Office of the Secretary of Defense. Symposia were held at the RAND Corporation for the first two or three years, and starting in 1991, they've been held at IDA.

In fact, the early 1990s was a period when IDA really got itself involved in the business of military medical care. You may remember the so-called 733 study. We have with us today the former IDA project leader for the 733 study, Matt Goldberg, who is now with CBO [Congressional Budget Office]. Nice to have you here, Matt.

DR. MATTHEW GOLDBERG (Deputy Assistant Director, Congressional Budget Office): Thanks, Steve.

DR. BALUT: The topics that have been addressed with this particular symposium are always forward-looking and always

exciting. Last year, we had an absolutely outstanding discussion of military compensation. The year before that, the discussion topic was defense agencies. And this year, once again, a very important topic, the military medical mission, which is certainly appropriate in this time of transformation.

And with that, I'd like to welcome you again to IDA and to the symposium. Jerry.

DR. JERRY PANNULLO (Director, Economic and Manpower Analysis Division, Office of the Secretary of Defense, Program Analysis and Evaluation): Good morning. I'm Jerry Pannullo. I'm the director of the Economic and Manpower Analysis Division in the Office of the Secretary of Defense, Program Analysis and Evaluation, or OSD PA&E. PA&E is a cosponsor of the Defense Economics Conference, along with IDA. On behalf of PA&E's Director, Brad Berkson, I welcome you all to the conference.

We are recording today's proceedings with the assistance of a stenographer. When you ask questions from the floor, please identify yourself. Although we will publish proceedings of this conference, today's discussions are not-for-attribution until our publication is released. The speakers will have an opportunity before this gets published to strike the portions of their remarks that they deem too sensitive for public distribution. If you have questions, we will have a wireless microphone available. Please wait until you get the microphone before you ask a question, again, so everybody, including the stenographer, can hear your remarks or your question.

As we did last year, we've distributed clipboards that you all have, and they are purple. The intent of the color is two-fold. First, to highlight the fact that it's a nondenominational conference, and second, perhaps more importantly, is that we had a box of these left over from last year.

I've known some of today's speakers for more than a decade, and others I've met more recently, including some in the past couple



of days, specifically, our international guests and speakers, so it's with great confidence that I can make three comments or predictions about what will happen during the next ten hours. First, these panel topics are timely; they are of present interest to the Department's senior leadership. Second, the speakers are fascinating, and they will stimulate, I am sure, lively discussions throughout the day. This will not be one of those conferences that seems to drag on for months, although we will start in the summer and end in the autumn. Finally, at the end of the day, there will be hors d'oeuvres and drinks.

Allow me introduce our keynote speaker, Dr. William Winkenwerder, who is the Assistant Secretary of Defense for Health Affairs and has had that position since 2001. In this capacity, he is responsible for overall supervision of the health and medical affairs of the Department of Defense. He serves as a principal advisor to the Secretary of Defense for all DoD health policies, programs, and activities, and he exercises oversight of all DoD health resources. In other words, he has policy and resource responsibilities.

The purpose of the military health system is to ensure that the nation has available at all times a healthy fighting force, supported by a combat-ready health care system, and it is also to provide a cost-effective, quality health benefit to active-duty members, retirees, survivors, and their families. The system provides medical care for more than nine million beneficiaries through a \$33 billion health care system, which consists of a worldwide network of 76 military hospitals, more than 500 health clinics, and the Department's extensive private sector health care partners.

Dr. Winkenwerder came to the Pentagon after 13 years of executive leadership in the private sector at places such as the health care services for BlueCross BlueShield of Massachusetts and at Prudential HealthCare. He also held senior positions at Emory University and practiced primary care medicine. He is a graduate of Davidson College and of the University of North Carolina School of Medicine. Dr. Winkenwerder completed his residency in internal medicine at North Carolina Memorial Hospital. He also completed a fellowship in epidemiology and health services research at the University of Pennsylvania and received a Masters of Business Administration from the Wharton School at the University of Pennsylvania.

It is my distinct pleasure to introduce and welcome
Dr. Winkenwerder.

KEYNOTE ADDRESS

DR. WILLIAM WINKENWERDER

DR. WILLIAM WINKENWERDER (Assistant Secretary of Defense for Health Affairs): Thanks, Jerry.



Thanks so much for the introduction, and thank you for inviting me to today's conference. I want to extend my thanks to IDA for hosting this conference again in the tradition that has been mentioned over the years, and to our colleagues from PA&E for co-hosting, in particular Rick Burke. Thank you, Rick, Jerry, John Whitley, and your boss Brad Berkson. Ken Krieg, I think, had something to do with this when he was serving as the head of PA&E; he's now the Undersecretary of Defense for Acquisition

Technology and Logistics. Also, (Vice Admiral) Stan Szemborski (Principal Deputy Director, PA&E), who I think is going to be here later today, played a role. Stan has taken a very active interest in medical matters, and I think has been a thoughtful contributor to these efforts. Also, of course, Dr. David Chu will be here. This is truly an impressive set of minds.

We've really built some very strong bridges between PA&E and Health Affairs in the last few years: learning to speak the same language, use the same terms, and look at problems, though not with the same sets of eyes—which would not be beneficial, to address issues. We have brought thoughtful, perspective discussions, sometimes debate, to make the system that we have better.

Let me also thank and welcome our colleagues from overseas who have joined us today. We look forward to your comments and your input. Many of us here have visited the various countries represented, and we know you're doing interesting things in military

medicine. We know that what you're doing has relevance for us here in the United States.

As was mentioned, we have a very large health system here within the military to manage, grapple with, and move forward. We have, in addition to the numbers that Jerry mentioned and to provide more breadth of perspective, 131,000 or 132,000 people, roughly 90,000 in uniform, 40-plus thousand civilians and another 70,000 to 80,000 Guard and Reserve medical personnel. Today, they're playing an important role in the relief of the Katrina hurricane, and although we hope otherwise, they will possibly play a role in relief for Hurricane Rita as well.

There are two factors that have been influencing our efforts over the last couple of years. I'd actually go back even further than that, but certainly these factors have been front-and-center for the last two to three years in the military health system.

One is an effort to manage the rising costs of health care. I'll use "manage" rather than "control" because I don't believe we can actually control health care costs. A lot of people think you can, but I think we have to manage them. That's our challenge: to manage our health care costs. We're labeling that broadly "sustaining the benefit." We need to sustain the military health benefit because as we look at our costs growing out into the future, we're concerned about our ability to deliver the great benefit we provide today.

The other principal effort is one of transformation. As such, we are part of a larger set of transformation efforts going on across the entire Department of Defense.

Let me speak first about sustaining the benefit. You all know that increasing health care costs are not unique to the military or military medicine. They're not even unique to the United States. It's an issue that we're struggling with worldwide, particularly in Western societies, and I see no end to that struggle at this time. This should not be taken to mean that we all ought to just lay down our pens and paper, abandon all our efforts, go home and give up; we've got to bring thoughtfulness, we've got to bring data, and we've got to inform people broadly across society about where the trends are going so we can take action before the problems become truly unmanageable.

Our goal in the military is to sustain our excellent military health care benefit so our future generations can enjoy the great

benefit that we have today. Our current budget is around \$36 billion or \$37 billion this year, including the contributions that we make to the TRICARE for Life accrual fund. We're projecting that amount to be at or to exceed \$50 billion within five years. That's a large amount of money, even within the U.S. Department of Defense. Our current pharmacy budget is about \$6 billion, and it has grown by over 400 percent just since 2001. As we have sought to untwine and untangle these numbers, we believe most of our growth is attributable to expansion of benefits, and some, of course, is due to costs that we've incurred with supporting and deploying forces over the last three years. But much of the growth is due to expansion of benefits.

We're working to make the military health system more efficient and more cost-effective, and we've implemented a number of management techniques and different approaches to the way we're organized.

For example, we've consolidated from twelve regions and several contracts—about seven contracts and four different companies owning those contracts—to three regions and three contracts. We've eliminated some redundancy, and we've made a more seamless benefit across the country. We've developed a single pharmacy benefit, a uniform formulary, and a single pharmacy contract for all of our retail network. It just so happens the same company has the contract for our mail order. We'll be sending out a bid in the near future for the next generation of pharmacy contract. Given the numbers I just mentioned to you, this is a very important part of managing our overall cost structure.

We've introduced what we call prospective payment. That is a health care budget that's based on outputs rather than inputs, that utilizes payment methodologies like diagnostic-related groups, which the Medicare program began using about 15 to 20 years ago. We were a bit late to the game but we're implementing that now. We have sought to provide incentives to better manage our care and to measure what we do across our system, both in the direct care system and in the purchased care system. Just recently, we had a conference with our contractors and all three services to look at the whole area of disease management and what we might do on a more organized, formal level to take certain areas like congestive heart failure, diabetes, asthma, obesity—areas where we see a lot of expenditure of health care resources—and put together more tailored

programs to identify people who have those problems then make or help them be more efficient users of health care.

So we've done quite a lot and I want to commend all the people who have been involved in those efforts.

Let me talk about transformation for a moment. The DoD and the MHS (Military Health System), as I mentioned, are undergoing a major transformation. This transformation effort has had two principal propelling forces. One, which comes from the leadership of Secretary Rumsfeld, is identifying the need for the entire military complex to transform. Many of you have heard Secretary Rumsfeld talk about that. To be sure, under his leadership, we would have been on a transformative path, irrespective of events over the last three or four years. However, it's also fair to say that events of 9/11 and all that has happened subsequent to that have been a true force for transformation.

We've recognized the need to move more quickly, to operate more jointly, to be more efficient, effective, responsive, and to be able to align our forces—our people and our platforms—to the tasks. I don't want to get off into the broader military set of activities and efforts, but I think it's fair to say even the Guard and Reserve need to transform. For example, I just was listening to General Helmly on a C-SPAN radio commentary a couple of days ago, during which he was mentioning how misaligned the Reserve forces were to the tasks of the 21st century. Basically, much of the way those forces were structured and equipped, and what they were prepared for were very different from what is necessary for today's missions. They are prepared for the task of the 1970s or 1980s, not the task of the current decade. So the need for transformation is across the board.

Within military health care, let me identify three main sets of activities that relate to this transformative effort. The first of them is with respect to our facilities and our fixed infrastructure, and to that end, the principal organizing activity to make those changes has been the Base Realignment and Closure process. That said, it's also true that we started our thinking about what we needed to do with our infrastructure a couple of years before the actual Base Realignment and Closure process. In 2002 and 2003, we began to look at the whole notion of a market and a multi-service market, such as the national capital area or San Antonio, and ask questions about how we were organized to deliver services for half a million

beneficiaries. We brought in a consultant, the Bain Company, and worked through that issue. They came up with a number of recommendations, but at the end of that process, there wasn't a lot of political oomph to make those changes and recommendations. The BRAC process provided that oomph, and when General George Peach Taylor, Surgeon General of the Air Force, and his team, a joint cross-service medical group, was established, they had the benefit of not just that study, but of other work to look at how we might operate military medical facilities in a more joint fashion.

They did a great job looking at the whole spectrum of activities—training, education, health care delivery—and brought forward a very thoughtful set of recommendations in May. It actually was, in many ways, a centerpiece of the whole BRAC recommendations. On the day that the BRAC recommendations were announced, the medical piece was probably a third or a half of the whole event. It was front and center, and obviously, with the history of Walter Reed, they got a lot of attention about the change with respect to Walter Reed and Bethesda.

We were prepared for quite a lot of emotion, and frankly pushback and even politicizing these changes. Heaven forbid anybody would politicize something that you'd want to do in the Department of Defense, but we were prepared for that. I'm pleased to say that there seemed to be a very thoughtful reaction over the weeks and months that ensued, as the commission went around the country, looked at the changes, the medical changes. It didn't hurt that the commission chairman was VA Secretary Principi, who, having served in the military, and then at the VA helm for the prior four years—and we'd worked with the VA very closely, had a good sense of what we were trying to do, and that helped quite a lot.

Long and short is that the recommendations came through without a lot of change. There were a few tweaks on the margin. The flagship example of what that process produced was the notion for a new national military medical center at Bethesda; a jointly operated facility alongside the Uniformed Services University of the Health Sciences across the street from the National Institutes of Health. Along with that, the notion of a large—or moderately sized community hospital in Northern Virginia that would be closer to and provide access, care, and service for a large military population in that area helped to gain support for the recommendation. We've got these recommendations and a lot of change in our business process

to implement, and that's going to take five to six years, or even longer.

Let me talk about a second transformation effort, which has to do with what we call the Medical Readiness Review. This is co-led by PA&E, the Joint Staff, Health Affairs and Personnel and Readiness. For about a year or so, we've been jointly working together with teams looking at our personnel infrastructure, our human capital, and asking how well aligned it is to the broader mission.

Well, that's a difficult question to answer unless you know what the broader mission is, and that's kind of a moving target. As the Department seeks to define the broader role of the Department of Defense, it must determine how many missions the Department can take on, what kinds of missions they should be, how many can the Department execute effectively simultaneously, and what is the role of the Department in homeland activities, not just for defense, but also for humanitarian relief. We got a bit of vectoring guidance just last week from the President, who identified the fact that he thought—and I suspect it is not just his view, but a more broadly shared view—that the military does need to play a role in certain kinds of massive events, like the Katrina hurricane. There's a lot to be worked out in terms of how we get involved in such events without overcoming or overwhelming state and local authorities, or without sending the signal to those authorities that they don't need to prepare because the Department of Defense will just come in and take care of the problem. So it's a careful balance, and there'll be a lot of work necessary.

The task is to identify all of those missions; we have groups looking at what we need to support from the medical side: what kinds of people, how many, and what mix of forces and personnel. The activity's been going on for about a year. We anticipate another six months of work. We've begun to get some output for this that led us to conclude that we probably have an opportunity for some level of reduction and adjustment in our personnel; the debate will be over how much. Maybe some conversion of military positions to civilian, maybe some number fewer in total of military medical personnel; those precise numbers are yet to be determined.

We've labeled a third effort the Local Authorities Work Group. This is a bureaucratic title, but what it means is we put a group of

mid- to senior-level people from across all three services together and asked them how we could manage the rules more effectively, or reduce bureaucratic ways of doing business that we have today. We asked them “how would you allow people to move money or to manage things differently?” They came up with a set of about 23 recommendations that are really fostered towards a more joint way of doing business. We want to implement them.

So we've got three streams of transformative change: the BRAC, the Medical Readiness Review, and the Local Authorities Working Group recommendations. All of this is happening simultaneously with the Secretary's broader effort to look at the next four to six or more years of the Department of Defense through the Quadrennial Defense Review (QDR). We felt a need within our space to have some sort of guiding oversight process, eyes and ears, expertise to help guide these transformative efforts, and so we have established the Military Health System Office of Transformation. This stood up about three or four weeks ago. You'll hear later today from John Mateczun, the Deputy Surgeon General of the Navy, and we've asked John—actually, the (Acting) Deputy Secretary of Defense (and Secretary of the Navy) Gordon England has appointed John—to head this effort. They'll have a small staff of people and they'll take the recommendations of the BRAC working group and General Taylor, and take on that task of determining how we should work with all of the services and my office to implement the many recommendations for transformation. That's a two-year effort, and we think that John and his team are going to have a lot of work to do. But we're very excited he's in that position.

Let me speak finally about a broader set of activities and responsibilities with which we've become involved, probably mostly out of necessity, but they have had an impact on our overall efforts.

The first was with assistance in rebuilding the Iraqi health care system for the better part of a year, as Iraq was literally without a government, but had an interim situation with a coalition provisional authority. We had a team of people overseeing the Ministry of Health transition, but we continue to work through the military lines to the Iraqi military to help them establish an effective military medical capability. They have people who are getting killed every day, and it's important to them to be able to take care of those who are wounded, as a matter of providing the support for people's

willingness to go and fight. And so we continue to work with them on that effort.

In the area of tsunami relief, along with our colleagues from many of the countries represented here today, we were pleased to join the people in Indonesia, the World Health Organization, the Red Cross, and others in assisting in that effort. That was a significant effort for us, as was more recently, the Katrina relief. Today, we have about 2,000 military medical personnel in the region, and we don't anticipate that it will be a long deployment, but they are there. They've provided critical relief in the early days, particularly with search and rescue, evacuation and triage, and sort of getting people out of the New Orleans area, in particular.

Finally, in the area of infectious disease, I'll mention two things: The first is the DoD HIV/AIDS program, where we're working with our combatant commands around the world to provide military-to-military assistance for education, prevention, and training to assist countries, particularly where HIV is highly prevalent and where such efforts would be particularly beneficial to militaries to stop the spread of disease among military populations.

We're also involved today in assisting our civilian colleagues in preparedness efforts for the possibility of an H5N1 Avian flu epidemic. Our laboratories in Thailand and in Indonesia collect samples, and our surveillance system around the world is an important component for the early identification of an outbreak of that disease. We certainly hope that that doesn't happen, but I think all of us have a lot to do to be better prepared, both in terms of surveillance, early identification, and in terms of stockpiling antiviral medication and stockpiling a vaccine. Thank goodness we now have a vaccine but we need to mass manufacture it, which remains a big undertaking.

Let me close by sharing a vision for the future of the military health system. To realize this vision, we will need to effectively implement all of the components of these transformative efforts that I've mentioned: the Base Realignment and Closure process, the Medical Readiness Review, the Local Authorities Work Group, other aspects that are noted in the QDR, to include the possibility of a joint or unified medical command. That's under consideration, and we're discussing it. We also, obviously, need to look at our benefit and ensure that it is sustainable. Over half of our cost structure is

associated with the everyday cost of health care for our retirees; that's moving towards being 70 to 80 percent of our cost structure. From where I stand, I would like the person who's in my position five or ten years from today to have the flexibility or the authority to expend resources on today's needs for supporting missions and not be so constrained with the cost of retiree health.

So in the future, our vision is a well-managed, business-like operation in terms of providing the health care benefit and managing everyday health care. It is joint and interoperable when it comes to delivery of those health care services, both here and in deployed settings; fast and nimble; able to deploy and respond to a variety of situations, both here, domestically and internationally. When it comes to our facilities, we have centers of excellence, large centers that compete effectively, at least within the American marketplace in local communities, and in the case of a handful of these, specifically, the National Military Medical Center at Walter Reed, the Brooke Regional Medical Center in San Antonio, San Diego, Madigan, and the like, we need strong pillars of strength to sustain and support our entire system.

We need and will have the capability to be on the leading edge of research and development for military-relevant medical products. I include, among those, certain things that we need to protect our people against naturally occurring threats, as well as man-made threats. Finally, we want our forces protected wherever they are so that they can do their mission.

That is our vision. It's a changing world and we're challenged by this changing world. I don't think anybody could have imagined the amount of change and the challenges that we would have to deal with in the last four years, but we've all worked very hard here. I know our colleagues have worked similarly hard overseas in their home locations around the world. We appreciate the relationship that we've had with you; we hope that this conference is a further benefit to that relationship, and we look forward to working with you.

So with that, let me say thank you for the opportunity to be here today, and maybe I'll take a few moments to take some questions. Thank you.

CAPT. MATTHEW HUEMAN (Chief Resident, General Surgery, Walter Reed Army Medical Center): Good morning, sir.

DR. WINKENWERDER: Good morning.

CAPT. HUEMAN: My name's Matt Hueman, I'm a chief resident of surgery at Walter Reed.

I had a specific question. You said that 80 percent of our health care dollars at some point in the future will potentially be devoted towards retirees. You said you wanted a retiree to have the flexibility to be able to choose what type of health care he wanted. And you mentioned centers of excellence that you would want to establish. My concern, as somebody who has a significant commitment to the Army as a surgeon, is that we would lose our focus on retirees as the primary focus of our health care dollars moves towards our soldiers. This is understandable, but I believe that we might lose our centers of excellence if we let our retirees go away because in general, our graduate medical education, as surgery residents, is primarily derived from those over-65-year-olds, and that's a significant concern to me.

Thank you.

DR. WINKENWERDER: Great, an important point. You may have either mistaken what I had just said, or maybe I didn't state it clearly enough.

I believe that we need to take care of our retirees. This is not a matter of pushing retiree populations off for someone else to take care of. We need to, and we will, take care of our retiree population. Much of that care, in my view, ought to be provided within the Walter Reeds and the Brooke or the Wilford Halls or the San Diego centers, in other words, all of our medical centers.

What I was suggesting is that we need to be competitive because people do have choices in our system today. We need to be accessible. I think I've heard, as recently as this morning, that there are some problems with access to our facilities, and that's an issue. People have to be able to get in easily. If they can't, they will use the private sector. But the principal factor that is propelling the growth and expenditures is not whether the care is in the private sector or in the direct care system, rather, it's the richness of the benefit itself. This richness influences utilization as well as cost to the government versus cost to the individual. That's the issue that's a challenge for us.

CAPT. HUEMAN: Thank you, sir. I just want to make one last point.

As we've gotten a lot of soldiers coming back from Iraq at Walter Reed Army Medical Center, there's been discussion that perhaps we should focus more on just taking care of the soldiers and then allowing those patients who are retiree beneficiaries to go out on the economy because our mission is towards taking care of soldiers. And so that was kind of the reason why I was concerned about that. As we're starting to shift away from that, we're starting to have difficulties with operating schedules, of having to cancel elective cases, and so our retirees have to wait another week to have a cancer removed because we have soldiers coming in from Iraq who take up [our resources], and it makes it difficult when we don't have military members who are taking care of these cases.

We have contract people who have to leave at 3:00, and so we ultimately don't have the capability to take care of these people. Even though the doctors are there for it, we don't have the ancillary personnel to help us.

DR. WINKENWERDER: Well, see, one of the challenges I would say that that represents—it's a management challenge. It's a challenge that, to my way of thinking, ought best be dealt with flexibility to manage. One way of thinking about this is what's happening over at Bethesda.

Are all their surgeons and ORs [Operating Rooms] busy? What's happening over at Malcolm Grow? I mean, we've got a lot of capacity here in the national capital area; how well are we using that total capacity?

So we can't just think about what the Army is doing or what the Navy is doing. Rather, we need to look more broadly at our overall capacity and fully utilize that overall capacity. We have to figure out a way to manage jointly, and that's a new challenge. We're doing it today in certain places, but we've got to decide how we want to do it here in the U.S. I would argue that we've got the capacity, and for the most part, with some management flexibility, we could manage that kind of situation without sending all the patients out.

Yes, next question. Is there another question?

MR. EDWARD WYATT (President, EWyatt Consulting, LLC): You made reference earlier to the fact that—as we heard in a hearing recently—the benefit's destiny, and it's the use of that benefit and its cost that drives ultimately the rapidly escalating cost in the MHS. One part of that benefit is the amount of skin that the individual

beneficiary puts into the game. I noted last week, or perhaps it was earlier this week, that FAHBP (First American Home Buyers Protection Corporation) did their annual release of cost growth on other government employee insurance, and they ranged from five to 15 percent, the average increase being about ten percent for the individual, and an additional five percent for the government. I haven't seen any such changes in my enrollment fees for TRICARE Prime or in the cost-sharing arrangements in utilizing TRICARE.

Do you see any likelihood of the Congress working with you to enact changes that might at least allow you to get on a point on that inflation curve—

DR. WINKENWERDER: Yes.

MR. WYATT: —where you don't deteriorate anymore? Thank you.

DR. WINKENWERDER: Well, great. Thank you. That was a great question and a very practical observation.

We will continue to have a serious problem, in my judgment, unless and until we create an adjustment mechanism of some sort with our share of the cost and determine how to distribute that between the individual and the program, i.e. the government. Just about every other health insurance program has that, including other government programs such as the Federal Employees Benefit Program and Medicare, which is another important beneficiary population. There are adjustment mechanisms. So the answer to your question is yes, we are in conversations with the Congress. Some have openly suggested that this is something that we need to think seriously about, and, at the appropriate time, take steps to implement. Senator Graham, who's the head of the Personnel Committee of the Senate Armed Services Committee, made that observation last May, I think it was, in a hearing.

But as we step towards changes like that, which are real and significant, we want to make sure that we have a full and open discussion and debate within the leadership of the military, that we also engage with the outside community, with the Congress, and that we know what we're trying to accomplish when we make a change like that.

DR. PANNULLO: Please join me in thanking Dr. Winkenwerder.

DR. WINKENWERDER: Thank you.

[Applause]

DR. PANNULLO: We have, Dr. Winkenwerder, a token of our gratitude. This is a Jefferson Cup.

DR. WINKENWERDER: Oh, that's very nice. Beautiful. Thank you, Jerry.

DR. PANNULLO: The Jefferson Cup can serve as a symbol of getting the most out of your fixed resources.

DR. WINKENWERDER: Very relevant.

DR. PANNULLO: So I will tell you the story of the Jefferson Cup. In 1806, Thomas Jefferson was bequeathed two silver cups by his friend and teacher, George Wythe. Several years later, Jefferson sent the Wythe cups and two others—that's a total of four—to John Letelier, a Richmond silversmith. Jefferson directed that they be melted down and made into eight smaller cups, weighing about five ounces each and in the form of a small cup sent as a model, designed by Jefferson.

DR. WINKENWERDER: Great. Does this mean I can drink all night out of this cup, and I won't feel it?

DR. PANNULLO: Yes.

DR. WINKENWERDER: Good.

[A recess was taken before the proceedings continued.]

TRANSFORMING THE MEDICAL FORCE STRUCTURE

DR. DAVID S. C. CHU

DR. PANNULLO: I invite everybody to take their seats again.

The topic for this session is Transforming the Medical Force Structure. I offer you a couple of numbers to provide a bit of context.

In transforming the force, we've been asked questions such as, to what extent should we focus the force on warfighting, and to what extent should we outsource commercial activities. And a few statistics here: We have just under 200,000 medical personnel in the total force, if you count the active duty, Guard, and Reserve. But the specialty mix is weighted to the benefit mission. At the beginning of this year, less than 25 percent of the total medical force had deployed for OIF or OEF, but 50 percent of general surgeons have deployed, with 30 percent of those deploying more than once. Of the 17,000 physicians in the total force, only about 1,000 are general surgeons. At the end of fiscal year 2003, there were 443 active-duty general surgeons, compared with 639 active-duty pediatricians. So you can see we have challenges in terms of our force structure, our force size, and the force mix. The perfect person to address all of these is the Honorable Dr. David S. C. Chu.

Dr. Chu is the Under Secretary of Defense for Personnel and Readiness. In this capacity, he's the Secretary of Defense's senior policy advisor on recruitment, career development, pay and benefits for active-duty, Guard, Reserve military personnel, as well as the Department of Defense's civilians. And he is responsible for overseeing the state of military readiness. He also oversees the Defense Health Program, the Defense commissaries and exchanges, the Defense Educational Activity, and Defense Equal Opportunity Management Institute.

Dr. Chu served earlier in government as the director and then Assistant Secretary of Defense for Program Analysis and Evaluation. He has served as the assistant director for National Security and International Affairs at the Congressional Budget

Office, as well as in several other senior executive positions with RAND, including the director of the Arroyo Center and the director of RAND's Washington office. Dr. Chu holds a Bachelor's degree in Economics and Mathematics and a Doctorate in Economics from Yale University. He has served in the Army, where he became an instructor at the United States Army Logistics Management Center, and he completed a tour of duty in Vietnam and obtained the rank of captain.

Please join me in welcoming Dr. Chu.

[Applause]

DR. CHU: Jerry, thank you. Thank you all for allowing me to join you this morning. It's a great privilege to be a part of this conference. Let me say at the outset, as I'll reiterate at the close, that we're looking forward to the exchange of ideas and learning from our allied friends as to how you are confronting some of the same issues that we face.

Let me, if I could, spend a few moments outlining my perspectives on this question of what should be the medical force structure. Jerry introduced it with some numbers in his introduction of this morning. And in thinking about this question of medical force structure, I do believe we need to back up and remind ourselves of the ultimate question here which is: for what is this structure intended?

What is the purpose, what is the outcome, what is the result that we seek to achieve with the structure?

The structure obviously does not exist by itself, nor does it exist as an end in itself. Rather, it exists in order to accomplish certain military or national missions. And that, I think, is a bit of a neglected subject in this country.

If you look at how the United States reacted to the end of the Cold War, in terms of general military structure—not specifically the medical community, but the military structure generally—it was to create basically a five-eighths-scale version of what we had in the



Cold War. It's not a surprising result. We felt, with some merit, that we were on the winning side, and, as any coach in an athletic endeavor, if you have a winning formula, you are reluctant to change that formula. That's an issue in our body politic, as I think people in this audience well know, that has concerned the Congress for some time. It's why the Congress, in my judgment, took up an idea from the Commission on Role and Missions that was convened shortly after the end of the Cold War and specified in statute that there should be a quadrennial review of military strategy, as well as the force structure, investments, and preparations that sustain that strategy.

In the first quadrennial review that was mandated in the mid-1990s, the Congress created a special panel, the National Defense Panel, to grade the homework of the secretary of Defense in conducting that review. In fact, the Congress' lack of confidence in the Department is shown, I believe, in the statutory requirement that the panel comment on the draft product before the Secretary of Defense submitted it, as well as offering a grade on the final result. And it is that final report of the National Defense Panel, as I believe many here recall, that created this focus on the word "transformation" as the way ahead.

Interestingly, I would argue, the panel was not very specific about what it meant by transformation, and indeed, while there has been [much] endorsement of that word by many, there has been less discussion of what we might mean by that term. And I think this also applies to the medical community within our own military. So this conference is very useful as a way of confronting that issue [of the meaning of transformation] and asking ourselves what kind of medical force structure is responsive to the mission needs that the United States and its partners in the world of the future might wish to have as the foundation of our ability to respond as the instrument of conducting national military missions.

We can see, I would argue, the beginnings of that evolution in how this military thought unfolded about the problem of casualty care as operations in Afghanistan in 2001. Classically, this department, as people here are aware, thought of medical care as something we took forward with us, so we deployed large elements in a staged fashion: some at the very front with increasing capacity toward the rear. It's why we have hospital ships still in our

inventory, which, while useful as political symbols, might or might not be something easily protected in a global war on terrorism.

But we changed our model for land operations in Afghanistan. This was not a sudden change; this had been under discussion for some years prior to those deployments. And I do think this is an important point to keep in mind in these evolutions: that new ideas rarely come full-blown to our minds. They're often the product of some years of debate and deliberations such as we're undertaking today in this conference.

There was some discussion during the 1990s, particularly, I think, by the Air Force surgeon general, that we could do this a different way. We could bring the patients back to a safe haven at the earliest opportunity. And you've all seen the result as it is actually practiced in our system today, both in Afghanistan and Iraq, where the medical objective forward is to stabilize the patient sufficiently that he or she can be brought back to a safe haven, perhaps through a transit point as Landstuhl is currently used. (At an earlier point in time, we used our base in Spain for that purpose.) The result, I think, has been, in a modest way, a transformation about how we think about medical care. So no longer is it actually a good metric, I would argue, to ask what fraction of medical care might be deployed; in fact, you might argue that you want to focus on how little of the medical establishment should be deployed and how much of this mission can be achieved through what we like to call "reachback," meaning we'll perform the services—this is not limited, I'm going to emphasize, to the medical mission—as much as possible from a location that does not require large amounts of force protection, where we do not need large amounts of sustaining support for the lifestyle people expect. Instead, we bring the activity back to that safe haven. Whether that safe haven is in an allied country or in the United States is obviously a matter of tactical selection.

And I do think that people in this audience who are clinicians know much more about this than I do. But it is a great tribute to the ingenuity and the technical skill of our medical establishment that it has devised the procedures necessary to care for these patients. Many of these patients are quite sick when put aboard these aircraft. The fact is that we have not had—this is a considerable achievement—we have not had significant losses in transit. This is an enormous tribute, I would argue, to the preparations, the training,

the dedication of the medical crews that are carrying out these missions, to say nothing of the flight arrangements that the Air Force sustains. It's quite a story of success, and it has gotten some attention in the news media.

I do think as a case study of change—of transformation, if you would like to use that word—it's a very interesting example of how productive change can occur. It's occurred without a great deal of commotion, and, it's occurred with the support—indeed, the encouragement—of our medical leaders.

Everyone's agreed it's the right thing to do. And of course, from the perspective of my current portfolio—Personnel and Readiness—it's the right thing to do in terms of morale. It's far superior from the families' perspective to be able to come to the bedside of the injured person and help sustain that individual. Indeed, many would argue it helps the healing process, and there's actually, I know, some literature to that effect. So here is a small change, a modest change, and a transforming change, and one with very productive results.

Another set of events that has occurred, that might have encouraged more change—and to some extent, did encourage more change—was the biological warfare attack we experienced in the fall of 2001, and the plausible evidence that there may have been repeated efforts since that date. The attack was comprised of the anthrax letters that were mailed to the Congress in that period, and, to some in New York City. In an important way, those events have brought the American military medical establishment back to the type of situation in which it made a significant set of contributions in the late 19th and early 20th centuries. By this I mean the type of situation in which the military medical establishment helps us deal with a new and different medical challenge, a challenge not restricted to the military sphere, like the type of challenge that was posed by the yellow fever in the Isthmus of Panama.

We have not changed as much in that regard and I think that it is interesting if you think about this in the context of case studies of how events encourage institutions to rethink their purpose and their application. We have not changed as much in terms of dealing with biological warfare as we have with casualties. To some degree, this may be because in our system, the American system, responsibility for development of products has not been typically seen as the lane, so to speak in bureaucratic terminology, of the medical

establishment. It's been seen as the lane of the acquisition establishment, which has a somewhat different view of these matters. And I do think, as you can tell, that that's unfortunate in this case because I believe the medical establishment, in this instance, in this regard, has a clearer view of the outcome we want as opposed to the instrument we wish to use. I don't want to demean our acquisition colleagues, but their focus is on buying the thing; your focus is on making sure the patient either gets well or doesn't get sick in the first place, and that does tend to lend a certain difference of view as to how we should solve a problem. It's a view that I think is reflected in the success of rethinking how we would do medical care forward.

I would hope that in our own enterprise, and in the way our allies deal with their enterprises, we succeed in giving the medical community a larger role in thinking about how we protect not just the military establishment, but also how we protect the larger national public against biological warfare threats. I have a practical perspective on why I believe the medical establishment should have a larger role in that regard, but there's also a political aspect to this reasoning. The practical aspect, of course, is that our people wearing the uniform, and their families, could just as easily be victims of a biological warfare event or biological event. (Maybe I should strike the word "warfare" from that phrase.) More important, as we've seen in the case of Hurricane Katrina, if there should be a traumatic national challenge, the country—whether we believe we should have been the first responders or not—will turn to the military as an instrument of last resort. And while we don't want to undercut the role of those institutions that ought to be first in line to deal with these issues, I do think we have to be prepared to deal with these issues, and have a backup strategy in place. It argues that we create a partnership between the military and the civil institutions of our country in dealing with biological issues, and that's something that Dr. Winkenwerder is working on energetically, indeed, with some measure of success.

We are engaged, as you know, in the next Quadrennial Defense Review. The Congressional statute is enduring; it goes on forever since there's no sunset clause on this statute, so every four years, we will have a review. It is a great opportunity to rethink, to review anew the principles on which we base our decisions, and I think this

is what Jerry raised in his introduction: Should we have a different medical force structure than we have today?

Indeed, one of the things that PA&E has chaired ably over the last 15 months has been a review of what we need to achieve the first purpose of our military medical establishment, which is to support deployed forces and the casualties that might result from those deployments—what we call “medical readiness” in our lexicon. We have engaged, as people in this audience know, in substantial modeling as a critical component of this effort. Under Dr. Whitley’s chairmanship we seek to gauge what we think we need, and how we should organize and staff that enterprise. My belief is we will recommend some important changes in how we do business, including a greater emphasis on use of civil personnel, in part because we have rethought how much has to be done for and how much has to be done by a uniformed force.

We are arguing that our military medical establishment is founded on and sized based upon a set of operational missions. You can have other ways of deciding the answer to that question. I’d be interested in what our allied partners use as their basis for deciding what should be the size and shape of their medical forces. But our method will be to consider what we need in order to sustain the uniformed force in its deployments against a likely range of contingencies.

Our goals and methodology will not be selected—I want to underscore—so that we can deal with any kind of domestic disaster that might arise. That type of response is not the purpose of the force, although we recognize that, in the event of some domestic disasters, we will have to back up civil authorities and be able to assist them as needed.

This is a different statement that you could make about the medical force structure size and shape. You could argue that its principal purpose—and this has sometimes, I know, been the import of some comments here in this country—is to deliver a specific benefit to our force, to their families, and perhaps to those who have retired from the force and to their families. That is not how we size the American military medical establishment. Indeed, on that front, we have already answered the classic question posed in business texts, which is “make versus buy.” We have decided as a matter of strategy that typically we will buy for many beneficiaries. We have

decided that we will not, in general, at the global level, size the military medical establishment in order to deliver a particular benefit, and we will certainly not size the military in order to provide a particular benefit for those who have left service (i.e. the retired community, who previously served, and their families). In our structure, as you know, those who have served but are not eligible for retirement are taken care of by the Veterans Affairs Department. So there has already been a decision to civilianize, albeit via a government institution and not a private sector institution. And we in Defense, through an evolutionary set of decisions, have chosen to buy care from the private sector.

[These decisions] are changing the nature of the Defense Health Program in a very significant way. For many years, our in-house system—what we call our medical treatment facilities—delivered the majority of care. That is marginally no longer true, and within five to ten years, it will be dramatically different. By the end of this decade, our forecast is that something like 65 percent of the care that we provide will be done through the civil sector, because it will be dominated by the care rendered to the families of those who have retired from military service. The system is going through a very historic set of changes in terms of the relative weight of its different components.

Now, at the margin of individual installations, in specific markets, we will look at this question of will we be better off providing some of the care ourselves as opposed to using the local providers for that purpose. Dr. Winkenwerder spoke to some of this under the heading of Medical Transformation. We're trying to empower market managers in the department, who are responsible for the largest concentrations of active-duty personnel and families, to make sensible business decisions in their local areas because, of course, we've already bought in those areas a significant infrastructure, a significant federal force, civil and military, to deliver care, and it may lead to the kind of—at first glance—somewhat unusual situation where we might have more pediatricians than we have surgeons. That could well be a sensible result, but it'll be a result increasingly driven by these market managers' decisions regarding what mix makes the most sense, given we are going to have a foundation establishment based upon the medical readiness mission, as we rephrase it. Then at the margin, in these different markets, we will make sensible decisions about

what we do ourselves versus what we accomplish through the private sector.

I am impressed, actually, to look at the record of the last 20 years, at the imagination and the skill of many of our facility commanders, notwithstanding what we in Washington may have imposed on them as constraints. They have often created sensible local arrangements. Just as one example, which I think is well-known in this audience among the American attendees, is Newport, Rhode Island, where the Navy some time ago decided it doesn't pay to run a hospital ourselves. We don't have enough patients to justify the overhead cost, the laboratory, and so forth. So they decided to just write a deal with a civil hospital, which, of course, is eager for our business. The innovation here, I think, is that the contract allows our physicians to attend the military patients, but we basically buy the bed service, the laboratory service, and the operating room from the local hospital.



And [this kind of thinking] has taken root in other locations. If you go to these different local areas, I think you'll be impressed in each case how sensible the decisions of the local commanders are, and all within the rules, as far as the inspector general is concerned! Dr. Winkenwerder's transformation effort is designed to make these changes possible and to be sure that they're all inside the rules as far as inspector general is concerned. This may, over time, lead slowly to some different solutions for how we deliver the benefit mission. That is a question yet to be confronted.

Lurking in the back of the minds of those who sponsored this conference, of course, is the issue that I'm sure that has been

touched on this morning already, and that is, how much does this all cost? It costs a great deal. Dr. Winkenwerder probably shared these figures with you, but in the budget we will submit to Congress next February, it's likely that medical costs from the financing perspective of the Department of Defense will consume just under eight percent of our budget. And if we do not change anything about the arrangements in front of us, those costs will be 12 percent of our budget by the middle of the next decade. To come back to Mr. Wyatt's question, these rising costs are not sustainable, and so we are going to have to think about what we do differently in this regard.

The medical cost growth is part of a larger picture that is my office's responsibility to confront. This larger picture is the understandable—and in fact, defensible—fact that personnel cost growth is one of the most important challenges faced by this department and, I would argue, any Western military. [This is] because, of course, as productivity rises in the civil sector, the compensation that must be offered in order to attract and retain the people that are needed rises as well. And so there needs to be inexorable attention paid on the part of the Department's leaders to personnel costs. Regrettably, [these costs] have not been something on which this department has focused until recently.

Indeed, if you look at our sociology—and some of you in the Allied ranks may share this sociology—many of our leaders measured their capabilities in terms of how many people they had in their ranks, not in terms of what they could do. This is changing. This is changing. The United States Navy is committed to reducing personnel costs; it is actually reducing the number of people that carry out their set of missions. This kind of change does require changing one's practices, often quite fundamentally.

So the Navy is moving away from the classic posture in which we always had certain carriers deployed, to one where the emphasis is on the ability to surge the carrier fleet when the nation so requires.

The United States Army, at the leadership level, is taking a similar position. The Army will grow somewhat in the next several years as the Army repositions itself and creates the additional combat brigades to which it has committed. But its leadership is dedicated to returning active uniformed levels to the level of the status quo ante, which was 482,400 before the events of September

11th. That means that the Army will have to reconsider a wide range of activities, by no means confined to the medical arena. And among other things, they will be asking whether it could perform some of these tasks with civilian personnel who are, at least on average, somewhat less expensive.

And that, perhaps, is a good note on which to conclude these remarks. I know there's a great deal of interest in cost, and there is a temptation to believe that if I only found the right organizational structure, the right way of wiring the boxes together on the diagram, that I could somehow miraculously cut these costs. Yes, we could be more efficient; I'd be the first to acknowledge that. I have my own pet rocks in that regard. But that's not the main driver, and I think Dr. Winkenwerder's comments, in answer to an earlier question, underscore that point. The organizational structure is not the main driver of our medical costs in this department. Our main driver is our national decision on what benefit we want to offer. That is the important source of the cost growth. And if we want that benefit, then we do have to be prepared to pay for it. If we do not like the cost of this, then we'll have to reconsider those parameters.

The issue of force structure, and how it might best be aligned, is an important issue, but it's important in my judgment not because of the cost savings it might generate—although those will be welcomed by the financial managers of the department—but because that organization and those business practices will speak to the performance of the force. And that performance is essential to our military success, particularly in an advanced society. Because how well we care for our people is one of the key indicators of what kind of institution we are and therefore our ability to sustain the nation's support, despite the difficulties of the present, and the onerous conditions we may confront.

It's the emphasis on outcomes that is the reason it's important to consider the issues in this conference. I look forward with my colleagues to what you're going to tell us, and what your new ideas are. I am confident they will give us additional inspiration as we look to the future.

Thank you very much.

[Applause]

DR. CHU: I'd be delighted to take one, two questions—I think we have about five minutes—if that's okay.

DR. PANNULLO: That's fine.

DR. CHU: I'm also delighted to debate with anyone who has a different perspective on these issues.

MAJOR GENERAL LOUIS LILLYWHITE (Director General, Medical Operational Capability, Defense Medical Services Department, United Kingdom): General Lillywhite. I'm going to make it difficult because I've got two comments, if I may, and a question.

Regarding reachback: yes, we've got to be careful not to repaint the tactics of the last war, but are you suggesting that you wish to use reachback as your main strategy in a future war of maneuver, where a war of maneuver actually requires medical units to actually move tactically on the battlefield? So that's the first question.

The second question: Have you actually considered in terms of reachback the implications of biological warfare? Certainly we have concern that as soon as biological warfare is used on any battlefield, overflying rights will be withdrawn by those countries immediately neighboring it, forcing us to treat even conventional casualties in the theatre of operations.



And the third issue is prisoners of war. There is a legal obligation to actually look after casualties to the same standard as one does one's own people. If you're actually going to use reachback as your primary means of actually treating casualties, are you committing yourself to evacuating prisoners of war to continental United States? Certainly, I know the United Kingdom

government is not keen on evacuating business abroad to the United Kingdom.

DR. CHU: Great questions, all three of them.

There were three questions: First, how does reachback affect treatment of prisoners of war and others for which our forces have a Geneva Convention responsibility?

Second, how viable is reachback if there should be a biological event of some kind, given the likelihood that there'll be restrictions on air transport?

And the primary question, would we really use reachback if we were in a war like, perhaps, the Second World War or Korea or something like that, a war of maneuver, as it was phrased?

Let me deal with them in that order since that's the easiest way. On the prisoner of war issue, we recognize what our responsibilities are and we're going to discharge those responsibilities. I think we have been reasonably successful in that regard. We have actually examined in some detail what we have done for detainees of various flavors in this [current] war. Our Army Surgeon General led a very able review of that. I think it's a pretty complimentary picture in that regard.

And if I can anticipate that I answered your first question with this response, the reachback is not a yes-or-no situation, it's a question of degree. Basically, we have concluded we should not take so many resources forward.

On biological warfare, we did actually look at this issue in great detail in the planning for the Iraq operation of what would we do, what would happen, et cetera. We were reasonably confident of our preparations. Would they be adequate in the event? Fortunately, we did not have to test that proposition. There are some inadequacies which we are continuing to work on that are not related to the medical establishment, actually, and which I'd rather not get into in an open discussion of this kind,. But that would be a different kind of event. You're absolutely correct in terms of how that would have to be handled.

That, perhaps, provides an undergirding for my answer to your primary question. I do think the march to Baghdad was a war of maneuver. It was rapid, but not the 100 hours of the first Persian Gulf War. So it did provide some test of this concept. And there was

an internal debate over how much capacity that can be moved forward we need to have. You obviously have to have enough that if the movement of casualties is interrupted for some reason, you can deal with that issue. So it's not as if you can completely turn off the forward medicine operation.

But we are clearly dedicated to taking as little forward as we need to, and it's really being governed by exactly the issue raised, which is how much capacity in theatre or nearby to theatre would we have to have against some kind of an attack that would shut down the air operation? So I would argue that reachback is a matter of degree, not of kind. But it can have a substantial effect on the resulting deployment of the forces. We have a lot less medical structure forward, and as a result, a lot less use of medical Reserves in this conflict than we had in the first Persian Gulf War. You can see it in every personnel graphic or metric that we display. It has really changed how we do business.

Other questions or comments or other perspectives that I can try to deal with this morning? If not, let me thank you for your attention and say that I look forward, certainly, to your results and the advice that you have to offer us.

Thank you. Thanks, Jerry.

[Applause as Dr. Pannullo hands Dr. Chu a Jefferson Cup.]

DR. CHU: Thank you very much. I heard the award background. I should value this, especially since Dr. Winkenwerder agrees I could have my evening drink with this.

[A recess was taken before the proceedings continued.]

PERSPECTIVES ON MILITARY MEDICAL COMMAND STRUCTURES

**MAJOR GENERAL JOSEPH E. KELLEY
VICE ADMIRAL KARSTEN O. OCKER**

DR. PANNULLO: Good morning again. I invite everybody to take your seats so we can reconvene.

Welcome back. We're back on schedule.

This panel is Perspectives on Military Medical Command Structures. The Department is currently looking at joint medical command structures. Program Budget Decision 753 or PBD-753, directed the development of an implementation plan for a joint medical command structure. Our first panelist is Major General Kelley. He is co-leading a development of the implementation of this plan. The other panelist is Admiral Ocker, who is from Germany, where they are implementing a joint medical service.

Major General Joseph E. Kelley is the Joint Staff Surgeon. In this capacity, he is the chief medical advisor to the Chairman of the Joint Chiefs of Staff, providing advice to the Chairman, the Joint Staff, and Combatant Commanders. He also coordinates all issues related to operational medicine, force health protection, and readiness among Combatant Command Surgeons, the Office of the Secretary of Defense, and the military services. He is the appointed U.S. delegate to the NATO Council of Medical Directors, and he is involved in other international medical relationships. He has also served as Command Surgeon of the Pacific Air Forces.

General Kelley received his Bachelor's degree from the United States Air Force Academy and his Doctor of Medicine degree at Rush University Medical School. He is also a distinguished graduate of the Aerospace Medicine Primary Course. General Kelley has had academic appointments as clinical professor and assistant dean, and has taught advanced trauma life support, advanced cardiac life support, and emergency medical technician courses.

Our second panelist is Vice Admiral Karsten Ocker. He is the Chief of Medical Staff and Surgeon General of the German Bundeswehr. He has served as the Deputy Surgeon General of the

Bundeswehr, Commander of Regional Medical Command I in Kiel, Germany, and as the Surgeon General of the German Navy. He completed the United States Navy Flight Surgeon course at Pensacola, Florida, and he served as a flight surgeon in the German Navy. He also served as a squadron surgeon in the First Submarine Squadron in Kiel.

He studied at the Medical Universities in Kiel, Lubeck, and Wien. He completed his residency in traumatology at the Medical University of Hannover and another residency in internal medicine at Cuxhaven for qualification in occupational medicine and emergency medicine.

General Kelley?

MAJOR GENERAL JOSEPH KELLEY (Joint Staff Surgeon, J-4): Thank you.

I don't think that you're here to hear me talk about different options, but I'll just put things in a little perspective. Discussions about a joint medical command have been going on since the late 1940s, and since then, throughout all those discussions, what I've been able to see happen is that we went from having a single service—the Army Medical Command—split to an Army and Air Force Medical Command after the Air Force split off from the Army. And part of that was because they felt that that joint command was not providing the support for the Air Force. And so, since all of those reviews, we really have not taken any major steps forward.



We are now in the process of writing a joint medical command plan as to what we would do. We do not have the direction to implement that plan at this minute, but we are making the plan, and we have representatives from all the services, the Joint Staff, who are involved, PA&E, and the comptroller, all of whom are considering the discussed factors. One of the things that we've been able to do is to get some very good ideas from people in other

countries who don't necessarily organize the same way we do. And one of the opportunities that I've had to interact with people in other countries has been as the U.S. representative to the NATO medical community. And so we're going to continue a discussion that Admiral Ocker and I had riding on a bus across Texas—

VICE ADMIRAL KARSTEN OCKER (Surgeon General of the Bundeswehr and Chief of Medical Service Staff, Federal Ministry of Defense of Germany): Texas.

MAJOR GENERAL KELLEY:—when I was discussing with Admiral Ocker about the structure of his medical service. At that point in time, he did not have the advantage of having slides available, and so trying to explain to a surgeon, you know, what all this structure involved was a problem.

VICE ADMIRAL OCKER: That's true.

MAJOR GENERAL KELLEY: So now we have the rare opportunity to have the discussion continue, but now we also have the opportunity to have some slides here. It's unfortunate that General Rosen isn't able to be here, but I would like to ask that as we get into the discussion portion that some of our friends, particularly, from foreign countries participate in the discussion because most of them have a different structure than either the U.S. or German Republic.

VICE ADMIRAL OCKER: Yeah.

MAJOR GENERAL KELLEY: So we have the opportunity to get some very good ideas from a number of different people on different ways of doing things. And I think the Germans have option, and we'll go ahead and have Admiral Ocker give his presentation.

VICE ADMIRAL OCKER: Thank you.

Admirals, generals, ladies and gentlemen, let me first express to you my gratitude. To receive, together with General Bick, an invitation to this meeting here in Washington is really thrilling. It's a pleasure to be able to present to you the youngest player on the Team Bundeswehr, the Armed Forces of Germany. But before I start, I would like to say something and I hope my colleagues from the other foreign countries will agree. I would like to express my sympathy to all of you for what Hurricane Katrina did to the Gulf Coast and to New Orleans and give you all my good wishes, especially for the people in Texas, that Rita hopefully will not do the

same to them on Saturday. It will be a big test on what one can do to manage a disaster like that.

That kind of leads over to my topic. Let me get back to explaining what actually led to the integration of the three medical services of Army, Navy, and Air Force into a united and independent branch of service. To do so, I will have to make some general remarks. First of all, as General Kelley said, what I present is in no way a blueprint or a recipe or a cookbook for how to cook a joint medical service. It is something that worked for us. It may not work for other countries. But, I will try to describe some of our experiences and ideas and perhaps capture the general trends we have seen. As General Lillywhite described, the general trend is the same in all the countries. The solutions have to be very individualized.

So with that, I would like to present to you the youngest player in the Team Bundeswehr, the Joint Medical Service.





Department of Defense Economic Conference
Perspectives on Military Medical Mission
Institute for Defense Analyses

Alexandria, VA; September 21st – 23rd 2005



The Joint Medical Service of the Bundeswehr

Vice Admiral (MC) Karsten Ocker, MD
Chief of Medical Service Staff and Surgeon General of the Bundeswehr



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We have been in existence since only 2001, after a preparatory planning phase of two years and an implementation phase of three years. To explain the developments leading to the integration of the three medical services (Army, Navy and Air Force) into a united and independent branch of Service, I would like to start with some general remarks.

Favourable conditions

- Comparatively small Armed Forces
- Medical Care for Active Duty Personnel only
- Total Change in Security Environment
- Need to Restructure the whole Bundeswehr
- Need to Adapt to new Challenges Abroad
- Need to Adapt to Reduction in Personnel and Budget
- Identified Redundancies in Personnel, Training, Development and Procurement, Treatment Facilities and Regimes
- **The Political Conviction and Will to do this !**



So let me start by listing some facts that worked very much in our favor and, in many instances, were indispensable for the transformation:

First, we are a comparatively small armed forces. There are only 260,000 to 270,000 of us, ten percent of which are medical. Second, we only care for active-duty personnel, which makes every transition a lot easier. Third, we have had a total change in the security environment in Germany, which induced a change in the Bundeswehr as a whole. The medical service has had to adapt to those changes occurring across the whole armed forces. So, in this sense, we were actually driven by others. Meanwhile, we were experiencing a drastic reduction in funds, money, and personnel, so we had to pull all of our assets together. Finally, perhaps the most important factor is that we realized we had many redundancies that we could no longer tolerate in personnel, training, development, procurement, and in all other fields. It was no longer doable.

So the conclusion is that in order to transform such a medical service, you need the political conviction and the political will. It has to be top-down.

Political Development



One such factor contributing to the transformation is that Germany's armed forces were experiencing a transition from a long-standing system, focused primarily on home defense at the borders of the alliance in a static state, to a military service that could deploy worldwide for a broad variety of missions.

In its first 40 years, the Bundeswehr has been manned, trained and equipped as a force for protecting Germany and our allies. The principal cold war mission for our medical service was to be prepared for the treatment and evacuation of large numbers of battle casualties within our own borders. We were dependent upon a lot of reservists; multinational solutions were not considered necessary or practical.

Since 1990 the military political environment has changed dramatically. After a period focusing on the borders and neighbor states of the alliance, the military political view has, for about ten years now, become open to worldwide crisis management. While the alliance still requires the ability to provide medical support for war fighting, this ability is no longer a primary focus. Meanwhile, the breadth of missions in which medical services are deployed has grown.



Missions German Medical Service

➤ MAROKKO		1960
➤ TÜRKEI		1976
➤ ITALIEN		1981
➤ IRAN		1990/91
➤ KAMBODSCHA	(UNTAC)	1992/93
➤ SOMALIA	(UNOSOM)	1993/94
➤ GEORGIEN	(UNOMIG)	since 1995
➤ FORMER YUGOSLAVIA	- UNPf - IFOR - SFOR/EUFOR - KFOR - MKD (INTERFET)	1995 1995/96 since 1996 since 1998 1998/03 1999-2000 2000 2001-2003 since 2001 since 2002 2002 2004-2005
➤ OST-TIMOR	(OEF ABCAbw.)	
➤ MOSAMBIK	(OEF Marine)	
➤ KUWAIT	(ISAF / PRT KUNDUZ)	
➤ DJIBOUTI	CSU Termez	
➤ AFGHANISTAN		
➤ Uzbekistan		
➤ BANDA ACEH		



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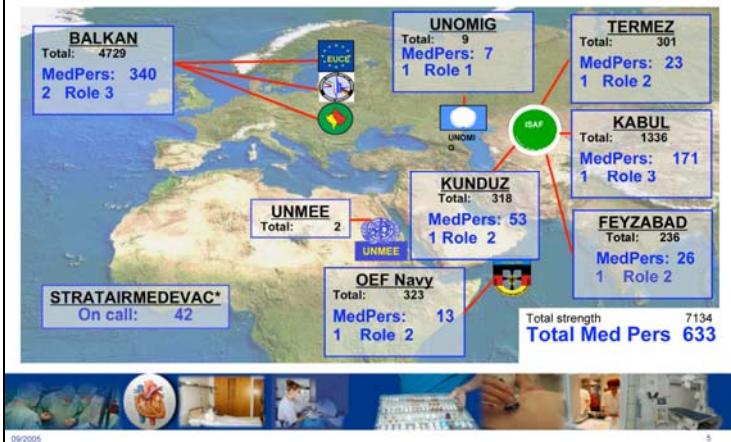
So beginning with a few humanitarian missions, over these years, the Bundeswehr Medical Service has participated and is still engaged in a growing number missions abroad.

We learned towards the end of the nineties that unless we pooled our resources, we could not sustain all of these missions with our active personnel and material split into three services. [The situation was further confounded by] a lack of coordination, the [presence of] different priorities, and [incompatible] timing, as well as many redundancies in procurement and training.

In addition to these factors, one must consider that, by German law, reservists can only be called into service in case of a declared war. So the limited manpower available for deployment as a result became the system's main shortfall.



German Soldiers on Mission



This overview [see slide, above] characterizes the approximate number of currently deployed German soldiers and active medical personnel. It also displays the number of small and large field hospitals and clinics that we maintain in the different theatres. As you can see, most German soldiers are deployed to the Balkans and Afghanistan. At present, about 7,000 German troops are stationed outside Germany including approximately 630 medical personnel.

You can also see that, to fulfill our doctrine, the medical personnel comprise approximately ten percent of deployed personnel in operations. However as a result of our capability-oriented approach, this percentage may be increased significantly if the area of deployment is very remote or in a high-risk environment.

Technical Guideline



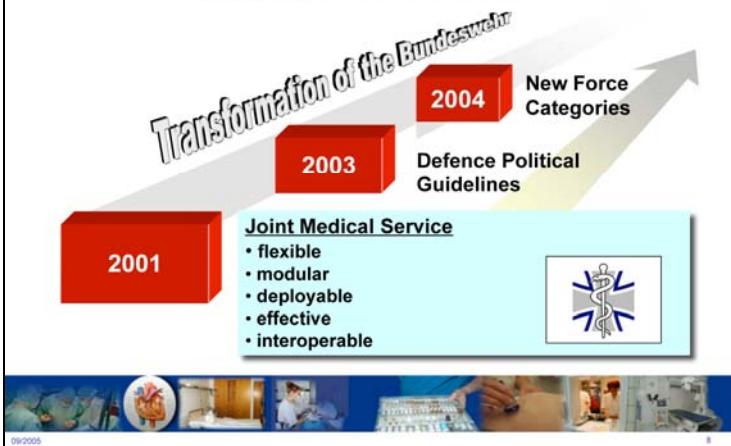
The guiding principle of the Medical Service is to provide ill, wounded or injured soldiers with medical care whose outcome corresponds to standards prevailing in Germany.



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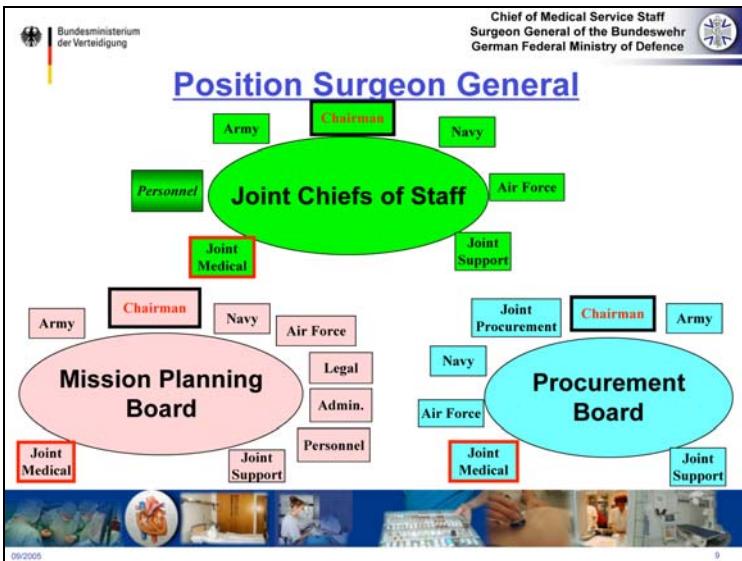
This slide articulates the overall guiding principle for our medical force structure in deployments, as it has been confirmed by Parliament. Specifically, this principle governs the quality of medical care provided to soldiers during deployments abroad. The structure of our medical capabilities will primarily be influenced by both mission-specific requirements and, above all, by this technical guideline. Although medical support will always be tailored to the specific needs of our ongoing missions, according to this guideline, its outcomes must also correspond to the general medical standards prevailing in Germany.

Joint Medical Service



In order to meet these future challenges, we required a flexible, modular, deployable and effective joint medical force with improved levels of interoperability. Because the Medical Service was an integral part of the Bundeswehr's transformation, medical assets and capabilities were centralized and an independent military medical organization was established by 2001. The driving factor in this process was to ensure that our capabilities would support the other four branches of service and therefore the Bundeswehr as a whole.

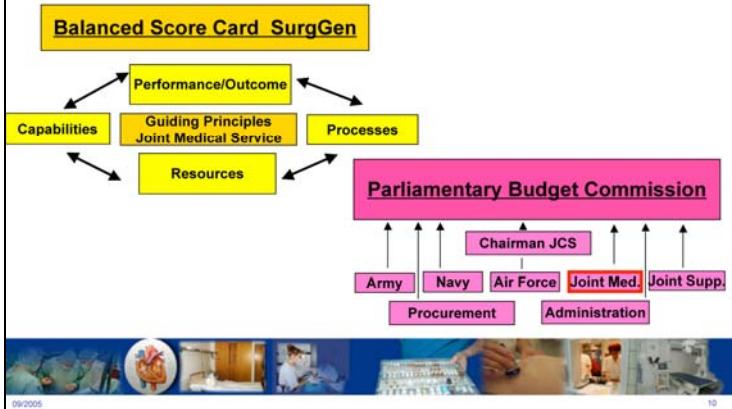
In total, the operational part of the Joint Medical Service is comprised of approximately 18,000 active soldiers. They are organized in one corps with four division equivalents under the Joint Medical Forces Command. In addition to that, we have medical educational and research facilities. The Air Force retained Aeromedical Medicine, the Navy retained the Shipboard and Diving Medicine, and the Army retained the Special Forces Medicine. Altogether, the total strength of the Bundeswehr Medical Service consists of 26,000 active soldiers and about 4,000 civilians.



As a full participating member at regular meetings of the Joint Chiefs of Staff, the Mission Planning Board, and the Procurement Board, the Surgeon General holds direct influence and is treated as an equal to the chiefs of the other four branches of service.

This presented an early opportunity to coordinate the capabilities and needs of the medical service with the operational requirements of the other branches. As a result, we could help avoid overextending ourselves with too many requests to fulfill and calls to defend our medical standards and specialties. Meanwhile, this arrangement gave the Surgeon General access to the political decision-making process via these opportunities to directly advise the Chairman in concert with the other chiefs of services.

Joint Medical Controlling and Budget

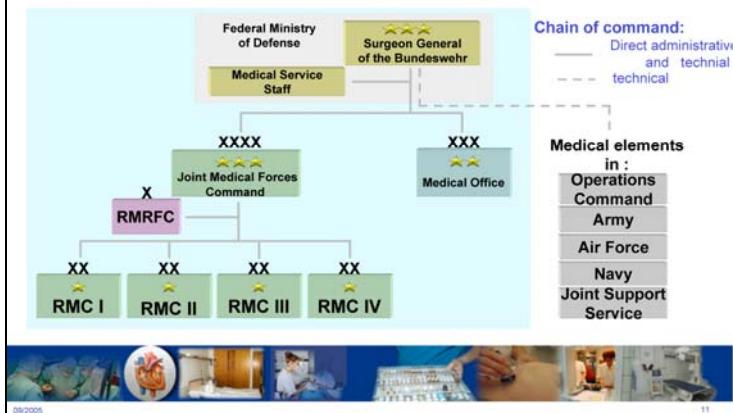


Furthermore, there is one controlling system for the whole Joint Medical Service, and thus one Balanced Score Card for the Surgeon General. This system proves to be one of the most effective tools for standardizing all of the procedures that were formerly split up between the services.

Like the chiefs of the other services, the Surgeon General directly explains and justifies his budget in the hearings of the Parliament Budget Committee, upon completion of an internal coordination process within the Ministry of Defense.

Because of the nature of this process, the goals and needs of the Medical Service are advanced directly into the budget and finance system, without being influenced or [compromised beforehand] by the needs of the other services.

Chain of Command



Next, I will say some words on the command structure of the Joint Medical Service.

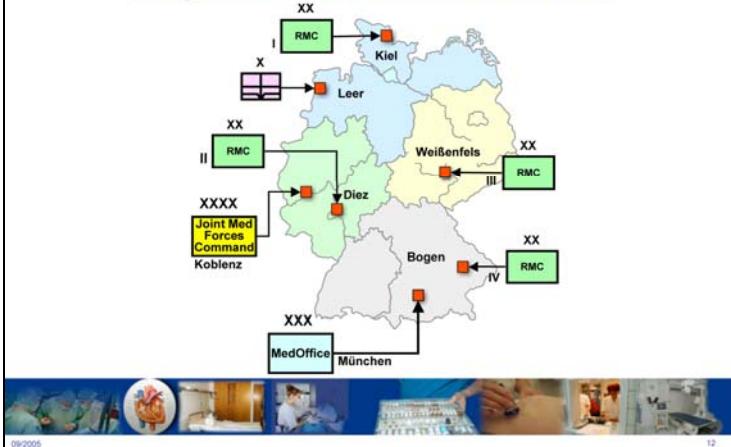
Like the other services, our command organization rests on two pillars. One is the Joint Medical Forces Command (a corps equivalent) with its four unified regional medical commands (division equivalents); all of these commands are commanded by medical officers. The other pillar is the Bundeswehr Medical Office in Munich which is responsible for training, research, and procurement.

The Rapid Medical Response Forces Command and the four Regional Medical Commands are directly [overseen by] the Joint Medical Forces Command and [at a higher level by] the Surgeon General.

The medical elements that have remained in the military services and over which I only have technical control, are shown on the right. Their centralization would not have helped to reduce interfaces because they are too specialized for the needs of their services.



Regional Medical Commands



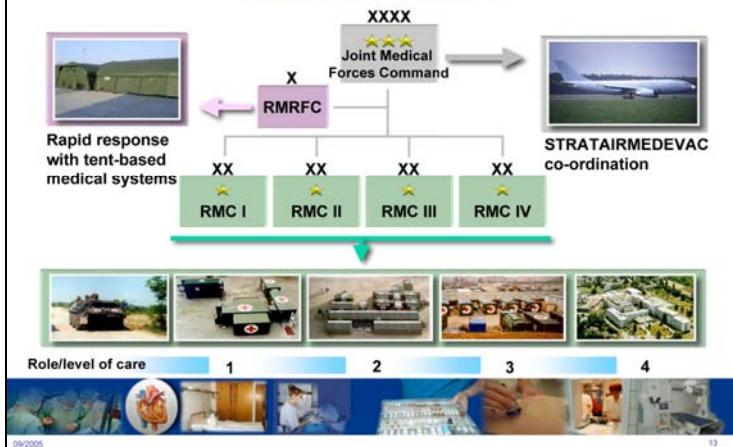
In particular, we have reduced redundancies as much as we could among the regional treatment facilities and clinics.

They are now all unified under the four regional commands, regardless of whether they serve the Army, Navy, Air Force or the Joint Support Service units, and, regardless of their uniforms.

In addition to themselves, each regional command is responsible for two joint military hospitals, one [active] field hospital regiment, and one [active] field medical regiment under its command. They are now capable of forming individual contingents out of their wide medical capabilities.

The regional commands are shaped according to the political borders of the 16 states in the Federal Republic of Germany, so that each state government knows its regional military medical counterpart at all times. The [regional commands] plan and exercise together and their commands and executive personnel are acquainted with one another.

Force Providers



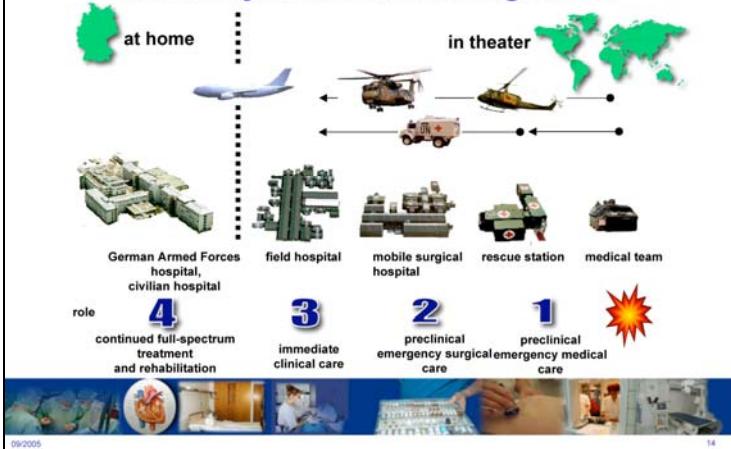
The Joint Medical Forces Command thus provides medical support for Bundeswehr soldiers during routine peacetime operations at home and during exercises and missions abroad. It also governs the Strategic Air Medical Evacuation.

In particular, the Joint Medical Forces Command exercises command and control over the four Regional Medical Commands. Altogether, these regional commands are able to assemble complete medical force packages tailored to mission requirements and to provide all levels of medical support, from medical treatment to guaranteeing the medical proficiency of all personnel. Level 1 personnel come from the Regional Medical Centers, Level 2 from the Medical Regiments, Level 3 from the Hospital Regiments and Level 4 from the Military Hospitals.

The Rapid Medical Response Forces, with their high mobility, comprise the medical initial entry capability of the Bundeswehr. These forces not only contribute medically to national evacuation operations, humanitarian missions, the NATO Response Force, and EU Battle Groups, but they also ensure initial operational capability in the early stages of stability operations.



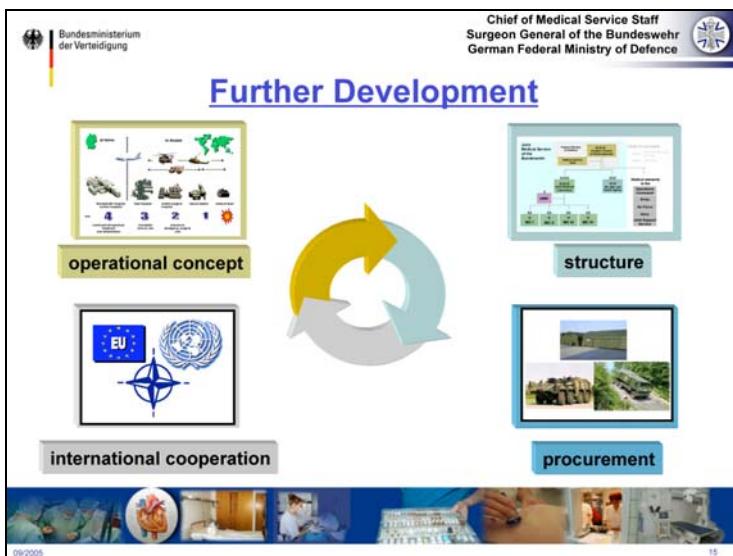
Casualty Care and Management



Casualty care and management in missions abroad is provided in a progressive manner through our roles in each of four functional stages that characterize the capabilities of our medical facilities, from the point of injury or sickness through evacuation to specialized care and eventually to follow up treatment and rehabilitation. Tactical medical evacuation is carried out by C-160 Transall fixed wing transport planes, and light or medium helicopters. For strategic aero-medical evacuation, our Medical Airbus A-310 offers six spaces, for continuous treatment of intensive care patients, and an additional 38 stretchers, ten of which are equipped with added patient monitoring equipment.

The specific steps [involved in casualty care and management] are:

- Mobile medical rescue team—first qualified medical aid
- Forward rescue station—life-saving stabilization
- Rescue center—damage-control surgery
- Field hospital—treatment by all specialties
- Bundeswehr hospital—follow-up treatment, rehabilitation



All our future efforts are focused on achieving the goal of having the right medical personnel, equipment and supplies in the right quantities and at the right places and times. Therefore, the further development of the Bundeswehr Joint Medical Service focuses on the operational concept, the structure, the procurement of medical material and equipment, as well as on international cooperation.



Advantages

- One Personnel Management; one Medical Budget
- One Medical Corps and with one Identity
- Centralized Command over all Resources
- Centralized Decisions over Strategies and Structures
- Centralized Decisions on Priorities
- Identical Education and Training
- Identical Regimes of Treatment
- Identical Development and Procurement of Material
- Avoidance of Redundancies at Home and on Missions



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In summary, we see that the single disadvantage [of such a joint system] – that the troop commanders and commanders of the service branches no longer own their own medical services—is opposed by a multitude of advantages that derive out of our joint medical service.

This is especially true in these times of limited manpower and financial resources and an increasing number of tasks.

Ladies and gentlemen, this ends my short overview. I am happy to answer any questions or enter into the discussion.

[Applause]

MAJOR GENERAL KELLEY: Thank you Admiral Ocker. Anyway, before I start asking other questions—because I have some here—we'd be happy to take some questions, or if we have some of our other countries that would like to chime in a little bit, we'd appreciate that.

AIR VICE MARSHAL TONY AUSTIN (Head, Defence Health Services, Australian Defence Force): Tony Austin, Australia.

We have recently gone through a review of our health organization, and I put forward the model—the German model—as

a possibility, and I have to say that it was not at all popular with my single-service commanders.

VICE ADMIRAL OCKER: Mine neither.

VICE MARSHAL AUSTIN: It dropped off the option list almost on day one because they lost—we as a defense force espouse a very joint approach to things. At the end of the day, I do not believe we have reached the level of mutual trust where people feel that they can access a service when they need it and where they need it if they don't own it.

Would you care to comment on some of those cultural issues?

VICE ADMIRAL OCKER: Yes, this is actually one of the breaking points, to convince the other services that we will be there when they need us. The big change is they used to own the medical service, and now they are supported by a medical service. And that [transition] took a lot of learning, but it was helped by all the commanding generals and officers who have been deployed worldwide, and who found out how valuable a good medical service is to reduce their responsibility load in the field. And so gradually—we did a survey with all the commanding generals of the Army, and gradually, they said, yes, that they are convinced, and they trust us now that we supply, even for exercises, for maneuvers, and for stuff like that, we supply all the necessary medical help they need.

What we left out intentionally is shipboard medicine which is still in the Navy under a surgeon general of the Navy; aerospace medicine which is still in the Air Force; and Special Forces medicine which is still in the Army. For the rest [of our medical efforts], I think our military leadership, after four years, is now convinced that the joint system seems to work. But it was one of the hardest issues in the beginning, and we were looked upon as the outcasts alone.

MAJOR GENERAL KELLEY: If I could make one comment on that same issue. I think we saw the same type of concern when we addressed the issue of aerovac in switching to our current process, which was described by Dr. Chu. There were grave concerns, particularly from the Army, regarding whether the Air Force would be there with the required number of airplanes and trained crews to perform the mission for the Army and the Marines who are

generating the casualties, even though it wasn't an Air Force requirement.

And so I think that any time we'd have these changes, that they are. I would say today that the Army and the Marines hardly remember the old way and wouldn't want it any other way.

General Lillywhite?

MAJOR GENERAL LILLYWHITE: Thank you.

I can see the major benefits, in terms of support, that the centralization we're discussing would bring. And in the short term, I can see the advantages and the disadvantages. The concern I have is that, particularly when you're looking at a war of maneuver, the high-intensity end of combat, particularly when you're actually looking at developing new methods of warfare, medical services are not separate and supported, but they're actually integral too, and indeed are actually influencing how the armor and the infantry—to take the Army example—actually fight the battle.

And indeed, even something like the development of new armored vehicles, where you [inaudible phrase] areas—one wants to be in the position where one can actually have major influence on how the base vehicle is developed. And in order to achieve that, one actually has to be part of the system, one actually has to be able to be within and to know and to be able to influence. And the difficulty of what we actually had during a short period of centralization in the eighties was that the Army, Navy, and Air Force suddenly found that the absence of integral advice from the medical area meant that they were unable to holistically develop their services and that we could not [effectively] separate medical to just a support role.

Would you like to comment on whether you think that your system would sustain the high-intensity area of battle?

VICE ADMIRAL OCKER: Thank you for that comment.

That was one of the shortfalls that we created and will now correct. It's one of the lessons learned that the distance, especially to the Army, grew quite wide, and that our people all of a sudden did not know how to operate in an Army environment. So we will strengthen our system. Up to the corps and division level, we will reinstate medical personnel that belongs to the Army so the corps will get a colonel medical corps, and the division will get a lieutenant colonel or colonel of medical corps, at least to have the

liaison. But you are right, one of the dangers of a separate medical service is, that especially with the Army—not so much with the Air Force and the Navy, but especially with the Army—all of a sudden, all the knowledge about battlefield behavior that we have tends to get lost. You are completely right, that's one of the problems that came up in the last half-year, and we will have to correct that.

MAJOR GENERAL KELLEY: On that question, when you talk about embedding the medics down to the corps level, are you talking about just staff—

VICE ADMIRAL OCKER: Yes.

MAJOR GENERAL KELLEY: —or the entire medical support.

VICE ADMIRAL OCKER: Just the staff. There will be one medical officer and one pharmacist for the logistics. But there will only be those two. The real medical soldiers still come from us, but the liaison will be a lot easier, and the liaison to Navy and Air Force will be a lot easier if you have people rotating in and out from the central or Joint Medical Service into the old branches of service and back into the Joint Medical Service. But we will have liaison elements in every major command.

MAJOR GENERAL KELLEY: I noticed that you had a Navy uniform on and General Bick had an Army uniform on, even though it's blue. And, I was wondering if you have a centralized medical service, how does that play with the different medical people and what uniforms do they wear?

VICE ADMIRAL OCKER: We still kept our old uniforms. One reason was very practical: To buy 50,000 new uniforms would have cost 26 million, so that was out. But on the other hand, it helped people make the transition. So somewhere deep in my heart, I'm still Navy, even though my head is Joint Medical Service. And that is the case with all the others that do not grow up in a joint system from day one.

So in this transition phase that might last ten years, we think—I think we did very well not to invent a new uniform, but to let people stay in their uniforms. And the only thing that differentiates us is this little button on the right collar; it is the symbol of the Joint Medical Service. But we kept our uniforms. But I have the feeling that gradually the people, even in their minds, have now made the transition to the Joint Medical Service. So when we sit together, it's no longer Army people here, Navy people there, Air Force medical

officers there, but, rather, they are mixing now, which is a good sign.

DR. CARL DAHLMAN (Senior Economist, RAND Corporation): I'm wondering if your only patients are on duty for your physicians back in Germany, what's the workload? How do they stay busy? There can't be a lot of work for surgeons in—

VICE ADMIRAL OCKER: We have a certain percentage of civilian patients. So we are servicing also the civilian market in the region where the Armed Forces Hospital is. We tried to expand that right now, and in one of the states—in Hamburg—we have been granted another contingency of civilian beds that we can treat. And in two other regions, we have reached an agreement with the health insurance system such that we are a little cheaper than the civilian side is. So we can and we do have about 50 percent of our beds in the military hospitals with civilian emergency patients, and that is where our surgeons, internal medicine, infectiologists maintain their skills.

MAJOR GENERAL KELLEY: Rear Admiral Timberlake.

REAR ADMIRAL GREGORY TIMBERLAKE (Command Surgeon, U.S. Joint Forces Command): Admiral, I really enjoyed that; it gave us lot to think about. But there's a couple of details I wasn't clear on.

You said that practically one-third of the medical personnel in uniform in Germany are not part of your central command, they're out in the Navy, Air Force, Special Forces.

Are they out there forever or are you—

VICE ADMIRAL OCKER: No.

REAR ADMIRAL TIMBERLAKE: —rotating people—

VICE ADMIRAL OCKER: Yes.

REAR ADMIRAL TIMBERLAKE: —so in other words, the people go from your Joint Medical Command to the Navy for a certain period, come back, maybe go to Special Forces, et cetera, so that in effect, the pool is all under your control—

VICE ADMIRAL OCKER: Yes.

REAR ADMIRAL TIMBERLAKE: —and the training, I would presume the [inaudible phrase], but when the personnel are assigned

to those specialized areas, they come under a separate command for function.

VICE ADMIRAL OCKER: Yeah. Thank you. Maybe I was not too clear on that. The management of all of the BUPERS—the management of all personnel—is joint. So the Navy might say, “we need four ship doctors,” and then they get them from the Joint Personnel Office. And after three years, these three will be returned into the Joint [Personnel Office] and get a billet somewhere on land or in a military hospital or somewhere else. The same thing happens at the higher levels. So we are actually rotating individuals at all echelons except the Surgeon General of the Navy; he is Navy. But even I moved from that position to the positions in the Joint Medical Service. So we have an in-and-out, and we rotate every three years, and it seems to work. It seems to work because we have a centralized personnel management system, as well as a centralized training system. So—and to give you the numbers, we have a total of 26,000 medical soldiers. About 2,200 or 2,600—somewhere around that—are left in the old branches of medical services, Army, Navy, Air Force; the rest, 24,000, are Joint. So it’s about 85 or 86 percent Joint, and 14 percent left in the old medical services.

REAR ADMIRAL DENNIS WOOFTER (Deputy Director for Naval Medicine, Office of the Chief of Naval Operations): Admiral Woofter from Navy.

The following question is General Kelley's.

I understand that the folks that already were in a certain color uniform stayed in that color, but [what about] the new accessions [inaudible phrase]? What uniform are they wearing?

VICE ADMIRAL OCKER: Okay.

REAR ADMIRAL WOOFTER: How do you allocate those?

VICE ADMIRAL OCKER: They still wear Army, Navy, and Air Force uniforms. So they come in, and they are asked to wear what they want. They are asked “what uniform do you want to serve in?” And they [might] say, “a Naval uniform.” We might have maybe 100 such billets, so after those are exhausted, new accessions can only choose between Army and Air Force.

They come in wearing the uniforms of the Army, Navy, and Air Force services, but they no longer stay only in the Army, Navy or Air Force; that’s the big difference.

But we will not have a unified uniform. That would actually be emotionally too hard to get. We will stay with the three, and that's okay. It's no—actually, at first I thought we needed a unified uniform for a corporate identity, but that's not true. Actually, it's no problem at all, and so we can—we let the people choose their uniforms, and, by that, we let them choose their basic method—their basic military training—which they do in the Army, Navy, or Air Force.

REAR ADMIRAL WOOFTER: Thank you.

MAJOR GENERAL KELLEY: Did any of our other international friends want to [add something]? [Perhaps] our friends from Canada, which has a little bit different—

COMMODORE MARGARET KAVANAGH (Director, General Health Services, and Commander, Canadian Forces Health Services Group, Canadian Department of National Defense): Hi, thank you. Margaret Kavanagh, Director General, Canadian Forces Health Services. Regarding all these pieces that have been touched on, we have our own experiences, obviously. We've been joint in our health services—now health services, not just medical services—since 1959, long before we actually became joint in the Canadian forces, which was in 1967. We led the way. And so we've got almost 50 years of experience in doing this now. And we've been through, kind of, many evolutions.

To the emotional issue of the uniforms, as you see, I wear a Naval uniform, but I have actually spent more time in the Army and have actually commanded two Army units. I have never commanded at sea, but have some aviation medicine experience. We manage our personnel much the same, we train jointly, we have one school and so on, but we actually deliberately try to give our personnel exposure to at least two environments, three if we can, which is more difficult. But we deliberately try to do two, and that applies to not just our clinicians. It also applies to our medical services officers. Actually, for the medical services officers, it's probably even more important because most of their experience in our community, that is, in our military, is in the Army. So for them to understand the Air Force and the Navy, it's actually—we have to really work at that for them because of deployment opportunities in the Army.

Uniform-wise, again, we don't care. We really are color-blind. Though, we have recently, based on our training requirements, established a quota system which requires 80 percent Army, ten percent Navy, and ten percent Air Force, because the vast majority of our deployments in the Canadian context are in the Army environment. Now, we won't fall on our sword over someone who says, if I can't wear a Navy uniform, I won't join. You know; we won't go there. We also, you know, we have people who change services. As a matter of fact, we've sent several exchange officers to the United Kingdom in various flavors. They always come back in an Army uniform, no matter whether they go over Air Force or Navy, they come back in an Army uniform. So if people request changes because through their careers they have experiences that have led them to develop loyalties to another service, sure, that's allowed.

Our Dental Corps is all Army because of its historical origins. The Royal Canadian Army Dental Corps was around when we all wore green, which some of you have been around long enough to remember. We all wore green once upon a time. When we split up into three colors, the Dental Corps elected to stay Army for historical reasons. But they serve at sea, and there's no problem.

Our medical technicians actually developed as junior tradespersons, predominantly in Army environment, but their major role as physicians' assistants is at sea, and many of them go to sea in Army uniforms. So it's just not an issue. It's just not a problem in the health services.

Now, I can't say that for the logistics community. It is an issue in the logistics community, but it's not in the medical community—in the health services community. I don't want to monopolize the microphones. I do have some other points when I speak, but I'll be happy to answer other questions in this way. For us, the chain-of-command issues that the German military have managed to overcome are still significant. We are not yet plugged in at the highest levels, like our German colleagues are. We are under the microscope of this major transformation thing too, and if I can get there, I'll be very happy because I think they have it right. You know, health services and medical support are so important to any military mission that the commanders at the highest levels have to have their medical advisors advising them directly, not filtered

through somebody else. And I think they have it right. God, I hope I can get there.

MAJOR GENERAL LILLYWHITE: If I could make a point, based on what two speakers said, including the last one. My point is that, in terms of centralization, there is probably no threat to the Army. Centralization seems to result in, as it were, a move towards the Army. I would say the highest common factor, but my colleague wouldn't settle for those comments anyway.

[Laughter]

FROM THE AUDIENCE: A wise man.

MAJOR GENERAL LILLYWHITE: But is there not an issue of critical mass?

One actually needs to develop medical support to maritime power and to air power, and these efforts actually require the allocation of intellectual resources that are, perhaps, reasonably dedicated to those two environments. If you're actually diluting other people in those environments too much, both in terms of reducing the numbers that are dedicated there and actually using a lot of their time within the Army environment, is there a danger that we're actually going to be detracting from the maritime and air power?

VICE ADMIRAL OCKER: Actually, we don't think so. We found that usually [the] medical officers going out with the ships, with the units to sea, are the younger ones, the ones that more or less come just directly from medical training and do their first deployments with the Navy. And then we train them in about eight weeks to be able to live onboard a ship and adjust to the special environments as a ship's physician. After that, when they have rotated through an Army environment or a Joint Medical Services staff environment and go back into the Navy as a squadron physician or in a higher position, they get a retraining phase—a revalidation phase—of maybe two or three weeks. And that proves to be enough.

It really is enough. So we found that there is a difference in the higher command levels, where [for instance, there is a need to] really advise admirals on what to do with their medical issues. But on the lower level, that really is not the problem.

MAJOR GENERAL LILLYWHITE: But I come back because I think you may have missed my point. I have no difficulty with what

I might call the immediate medical support to the Navy and the Air Force.

VICE ADMIRAL OCKER: Okay.

MAJOR GENERAL LILLYWHITE: [My concern] is actually developing that intellectual powerhouse, that is, actually saying that if you, Navy, are seeking to develop maritime power in this way, you'll need to adapt your processes and your attitude to health and indeed, perhaps, medical organization in such-and-such a way. It's the long-term ability to continue to develop the medical services I'm concerned about, not the day-to-day support to the individuals.

VICE ADMIRAL OCKER: I'm sorry, I misunderstood that. That is why we kept a one-star admiral as a surgeon general of the Navy, and he has a 34- or 40-person staff from whom development and education and training is one of the staff functions.

So we still keep a certain general with a specialized staff, and, as well, we keep a certain general of the Air Force with a staff of about 70 or 65 or something like that for all these special development and special operational issues that the special branches of the service have.

MAJOR GENERAL KELLEY: Now, one question—I think you touched on it, but who does the deployment planning for the medical force that's going to support, for example, your troops in Afghanistan right now?

VICE ADMIRAL OCKER: That's the obligation of the Joint Forces Command under General Bick. He supervises and does all the force planning, material-wise and personnel-wise, together with his four regional commands, but under the supervision and the commanding authority of the Joint Medical Forces Command.

MAJOR GENERAL KELLEY: And what is his interface with the various services in terms of providing that support?

VICE ADMIRAL OCKER: Okay.

All four services have a forces command that is structured the same as ours is, and they are equal, and they are on a daily, direct connecting basis, and they're working together very well. So the Forces Command of the Army, of the Navy, and the Air Force are directly connected to ours, and on this operational basis, they plan the deployments and they plan how many people and how many assets we give to the deployments of the Armed Forces.

MAJOR GENERAL KELLEY: And when you have the deployments, who does the base support, and who does the planning for your base support?

Because some of those missions that you talked about are humanitarian relief or predominantly medical missions, who provides the care and feeding for the medical force when you go out?

VICE ADMIRAL OCKER: One of the five components, or major forces commands, is the Joint Support. They deliver all that we need to survive, again, in a closed cooperation and in a closed connection with our Joint Forces Medical Command. So we have a Joint Support Command as well and they are the ones who deal with all those issues that we need to survive in an environment. It does not come from us. But it works well. Just as the Air Force supplies the necessary air mobility, the Army supplies the additional security forces necessary in a hostile environment. But everyone works together, and we really move into a joint system and we supply capabilities into one joint effort.

My inspector general once said a very, very brave word; he said the Navy no longer has submarines of the Navy, but submarines of the Bundeswehr, submarines of the Armed Forces, which kind of gets across the idea that all the branches of service supply their capabilities for a joint effort.

DR. RICHARD P. BURKE (Deputy Director, Office of the Secretary of Defense, Program Analysis and Evaluation/Resource Analysis): I have a question about the interface with the civilian sector that you spoke about.

Are your people deployed—or do they work—in civilian hospitals, or is it only that you're treating civilians in the military hospitals?

And the second, related, question I have: Is that useful from a training perspective?

VICE ADMIRAL OCKER: Yeah, we try to keep our people in the military hospitals in order to be able to deploy them as a team so that they go with their assistants, with their helpers, with their technicians as a team.

If we would send individual doctors into civilian hospitals, we would get them back as individuals, and we would then be forced to

compose new teams comprised of individuals who do not know one another. If we try to get civilian patients into military hospitals, we can still train—especially in surgery—but also in other fields, we can train them as a team and then deploy them as a team to Kabul. So it has a big advantage.

The other thing is, once the doctors go into a civilian hospital, sometimes they like it better there than in the military environment. And so, yeah, we try to keep them at home.

COLONEL PAUL MANNERING (Assistant Director Medical Operations, Defence Medical Services Department, United Kingdom Ministry of Defence): Admiral, Colonel Paul Manning from the UK

I wonder if I might just ask you a couple of questions with regard to force generation.

You described the four regions and how they support operations. First question is, does one region take on multi-operational theatres or—clearly not.

VICE ADMIRAL OCKER: Yes.

COLONEL MANNERING: If they do—and we just heard the question from Dr. Burke—what happens then in the backfield to maintain the capability within that region?

And in central money terms, are all the regions balanced, or do you have a rolling program that makes your operational [inaudible phrase]?

VICE ADMIRAL OCKER: I'll start with the last question. The regions are not quite balanced.

The general number [of medical soldiers] for a medical command region is about between four and six thousand. It differs; we have one that is really fairly small, and we have another one that's very big. But we found it easier to sustain for four months or to help one region in their commitments at home for four months this way. Say, if Medical Command Region 1 is the one that has to supply all theatres—not only Afghanistan or Balkans, but all—then 2, 3, and 4 will help, and the civilian sector will help 1, the first medical command, for the period of four months. And yes, then we have a reduced capability at home at that time. But it is easier to rotate that than to have a drain on all four regions at all times. So for a certain period of time, which is four months of deployment, we

might know that in this regional medical command, we have to rely more on civilian contractors for this four-month period than we do for the rest of the year. And that proved to be a better system than to take the persons from all four regions at all times. So crippling them all a little bit is worse than just having one region that has to rely more on civilian contracts during those four months.

MAJOR GENERAL KELLEY: And on that note, do you have any excess staffing that you have in your facility for that purpose?

VICE ADMIRAL OCKER: That's what we are trying now. We will reduce the Bundeswehr from 290,000 to 250,000, and we will reduce the regional medical facilities from somewhere around roughly 420 to 295 by putting them together jointly. And the excess personnel will be added to those facilities that remain. I am thinking we will have about a 15-percent surplus of personnel for all regional medical centers and for the military hospitals. Again, these extra personnel come from the facilities that we give up, and I can consider this personnel as a deployable part of the personnel in the hospital or regional medical center, which will make things a lot easier because then we always have a surplus of personnel.

COLONEL MANNERING: And so may I just ask, if I take a surgeon, as an example, for a four-month deployment, how long is that person away from the coal face? How much argument have you had from them saying "I'm away from my practice too long because the operational theatre is not delivering me that practice?"

VICE ADMIRAL OCKER: In total, he will be away for six months; four months' training for deployment and two or three weeks' leave after his deployment. So the total time of absence will be six months. But really, because we also open our field hospitals in the theatres for civilian treatment, our surgeons come back and actually say that in Afghanistan or in Kosovo, they treated cases that they had not seen at all in Germany.

So little by little, our surgeons are getting expertise in third-world medicine, surgery and internal medicine that they would not gain in Germany. So the primary concern they had that they would lose their skill during those four months has kind of turned around, and many of those surgeons come back and say, I have operated on cases that I would never have seen in Germany. So they are quite content with the system now.

COLONEL MANNERING: We have heard of more such experiences among physicians than among surgeons, I would say. But of course, we don't know—

VICE ADMIRAL OCKER: Really?

COLONEL MANNERING: —but we don't necessarily have—we do take civilians, of course—

VICE ADMIRAL OCKER: Okay.

COLONEL MANNERING: —but not as a—

VICE ADMIRAL OCKER: No, the internal and the conservative physicians might see more cases than the surgeons do in deployments, but actually, the reaction from both of groups was that they gained experience and they saw a lot of cases that were new to them. So they seem to be quite content.

MAJOR GENERAL KELLEY: Okay, I think we've exhausted our time, and so I appreciate the stimulating presentation and the discussion. I think it has done well. And we'll go on and move to the next phase, and thank you much.

VICE ADMIRAL OCKER: Thank you much for having me.

[Applause]

DR. PANNULLO: The next phase is lunch. I ask that you allow our luncheon speaker to step through the line first, then the rest of us can follow suit. The food is behind the doors where breakfast was served. Pick it up, bring it back, and we will eat in this room.

[A recess was taken before the proceedings continued.]



LUNCHEON SPEAKER

DR. JEFFREY S. AUGENSTEIN

DR. PANNULLO: Good afternoon. I'd like to introduce our speaker, Dr. Jeffrey Augenstein. He is from the University of Miami Jackson Memorial Hospital Center in Miami, Florida, and he is the director of the Ryder Trauma Center there. We've asked him to come here because the question, as we've heard earlier today, of how the department should maintain clinical skills for its medical personnel is one of interest and currency to the department.

Dr. Augenstein is going to provide his perspectives from the civilian side of this because some of our military folks go through his center for training. Traditionally, the Defense Economics Conference has a lot of Ph.D.s in attendance. This year, we have a fair number of M.D.s as well because of the topic. Dr. Augenstein, I think, is the only person here who has both an M.D. and a Ph.D.

VICE ADMIRAL OCKER: Joint.

DR. PANNULLO: Yes, joint.

Dr. Augenstein is a board-certified surgeon. He is co-chief of the Division of Trauma and Critical Care Surgery at the Ryder Trauma Center and director of the Center. He has focused his career on the care of critically injured patients. He's also the director of the William Lehman Injury Research Center, the Medical Computer Systems Laboratory, and the Trauma Intensive Care Unit at the University of Miami. He has studied and written extensively on the disease of trauma, automobile injury mechanisms, patterns of injury, and health care informatics. He's also contributed extensively to the collection and use of medical and engineering data in the discovery of injury patterns. Dr. Augenstein is a founding member of the Crash Injury Research and Engineering Network, a network of multidisciplinary hospital-based research centers created by the National Highway Traffic Safety Administration that examines automobile industries and fatalities.

Dr. Augenstein received a Bachelor's degree in Chemistry and a Master's degree in Psychology, as well as an M.D. and a Ph.D. from

the University of Miami. It's my pleasure to introduce Dr. Jeffrey Augenstein.

[Applause]

DR. JEFFREY AUGENSTEIN (Director, Ryder Trauma Center):

Thank you. This is indeed a pleasure.¹

Whether we're talking about the military environment or the civilian environment, the challenge of putting talented individuals together and creating teams that can take care of injured people is indeed a challenge. At the end of the day, we need people who can make decisions and teams that can make decisions, some of them very difficult, some of them decisions of amputation of a limb or determination of who is the most severely injured and who requires care first. A tremendous amount of technical skill is required. Such care runs the gamut from surgical interventions to post-operative intensive care. There's a lot of resources that are available to trauma teams, and the administrative management of those resources is critical. Teamwork is key.



As I go further in this talk, I'll not only have some of these pictures, but there'll be some graphic pictures of trauma. And I apologize to anybody who is eating that this may be a little heavy-handed, but I want to make the point that this is a disease that has catastrophic implications on human tissue. The decision-making and the technical execution must be very precise, or we have very bad outcomes from death to loss of limbs.

How have we been training surgeons in the past? Well, we'd like to believe we've had an organized approach to this, but it's basically been an apprenticeship. And if we are allowed five years to train a resident and two years to train a fellow, in most cases, we end

1 Appendix A contains copies of the Microsoft PowerPoint slides that accompanied Dr. Augenstein's presentation.

up with a good product, but not always. The curriculum is based on having live lectures; the challenge in that is that, often, the person who's supposed to give a lecture is tied up in the operating room, so the lecture doesn't get given. Or if you dim the lights among a number of residents and fellows, it's an interesting learning experience. We provide lists of recommended reading, but if you're working night and day, it's a bit of a challenge. We have rounds; we walk from patient to patient and talk about those patients. We have M&M conferences, which are morbidity and mortality conferences.

It's important to point out that surgery actually contributed the concept of quality assurance to medicine. And one of the first ways this was done was through talking about bad outcomes in front of a group. As you go around the country and world and participate in M&M conferences, they range from the most impressive dramatic presentations to actual, truthful descriptions of patient experiences. And it has always seemed to me that some have really reached the point of Oscar-winning performances.

We have a lot of clinical experience. Now, clinical exposure is a little bit like watching a professional tennis player. You know, if you can pick up from their skills, you may learn something.

But many surgeons really have not yet understood that simply performing an operation doesn't mean that the participant really picks the necessary skills up. So we give mock exams.

At the end of most rotations and clinical resident rotations of either a month or two, we often have some subjective and objective evaluations. Unfortunately, some of the subjective evaluations are done through lunchtime meetings, where [a surgeon] may not even remember the name of the resident who was on their service three months ago, so doing a precise evaluation is often not characteristic.

We have our in-house board exams. We make sure that the board exams are always given to people after they've been [inaudible phrase] all night so that their performance excels. And the American Board of Surgery has the right to take credit for having the first board exams that included both an objective examination and an oral exam. For those of you who took the exam many years ago, when I did, I don't think there was a more scary experience, certainly not based on any learning opportunities. We've moved to a more conducive environment to really determine whether somebody knows what they're supposed to.

Now, here's our problem: In spite of the fact that I'm interested in trauma, and that, in our facility, we have a wonderful set of capabilities to provide trauma care, most of our residents and medical students find other career opportunities. And that is true throughout the national experience.

We've changed resident work hours. For many people who trained a number of years ago, you checked in on the first day of residency and five years later, you left the hospital. And that provided, you know, a reasonable opportunity to absorb some experience. We've now reduced resident hours to 80 hours a week, which, you know, if you're an accountant sounds like a lot of work, but we're—that actually has had a dramatic impact on the way we provide clinical experiences.

Throughout the United States, the major trauma experience is blunt trauma—automobile crashes and non-penetrating trauma. For the general surgeon, this often means that there will be no operative intervention. Over the course of my career—in a little more than a quarter of a century—we've moved from operating on almost everything to observing most things where the patient is stable. So we will observe liver injuries and spleen injuries with excellent outcomes, but from the [perspective of striving to] create an experienced surgeon, that is a bit of a challenge. Added to the mix is the opportunity to experience natural or terrorism-based disasters at any moment. And it's tough to prepare for those. It's really tough to get teams that are used to dealing one-on-one with mass casualties.

And at the same time we're talking about these limitations, as I've been giving this talk, the knowledge base in medicine has increased dramatically, and it's tough to make sure that everybody has [all the knowledge and resources] they need. We feel that computer technology, and particularly technology that is available to the clinician at the point of care, is an important addition to trying to solve some of these problems, and I will address that.

What I'd like to describe is the center in which I work where we have the Army Trauma Training Center. And in this country, it's a rather unique facility; it's a building that's dedicated to the disease of trauma. And we've put together not only the clinical, but also the educational and research enterprises, and as I said,, for the last few years, we've had the privilege of training the Army's forward surgical teams in the Army Trauma Training Center. I'll deal with

that in much more detail later. This is presently a 14-day training program which, in my opinion, is really one of the best programs that exists for training teams in clinical care.

I think as one looks at this and other centers that have taken on military training responsibilities, there's the opportunity, obviously, for training, for development of programs, for understanding the whole process of training and the use of technologies to support clinicians in tough situations, and tremendous opportunities for research.

We know very little about how to train clinicians and how to create teams.

The trick in placing facilities for training military teams in civilian centers is that the environment must provide all of the things that are necessary, and I'll talk about that. There are a lot of hospital opportunities, but if the team is not exposed to extensive clinical experience, if the teachers are really not oriented towards the academic components of this, in my opinion, there are potential shortcomings. So we need a multidisciplinary system of care. The organization of the place must be conducive to allow for training and multi-component training; part of that is having an evacuation transport system that's well-integrated into it. And if the place deals only with blunt trauma, then you develop people who don't have experience in operation.

This is the University of Miami Jackson Memorial Medical Center. The parent hospital, Jackson, is one of America's largest. It's a 1,650-bed hospital. The building with the circle on the top, the heliport, is the Ryder Trauma Center. The disease we deal with, we deal with extensively. We deal with a tremendous number of people who experience very high-energy events. What we have in the facility is the pre-hospital through rehabilitative components, and we have the privilege of having not only the various clinical components, but the advanced diagnostic capabilities of CT, MRI, and angiography close by. We see about 3,600 severely injured people; by definition, to come to us, your life has to be at risk. And in addition, there's about another 8,000 people that are admitted to our emergency department on whom we consult.

How did Miami end up with the trauma center? Well, in the 1980s—and this was well-depicted in the television show "Miami Vice"—Miami was a bit of a war zone. I was told that many of the

weapons that were going to be used in war—real war zones around the world—were tested in Miami by the various drug cartels. We experienced what many communities experienced: a tremendous enthusiasm at one point for a bunch of hospitals to join together in a common cause of delivering trauma care to the community. And early in the eighties, we purchased helicopters, and all the involved hospitals put out big signs that said, we are a shock trauma center.

Unfortunately, many of them realized very quickly that this isn't a very profitable disease to be involved with, particularly if you're a surgeon. I trained many of the people who went into practice in those hospitals. If you're expected to do a gall bladder in the morning or a colon resection, and you've been operating all night on a gunshot wound, you know, you're less inclined to be excited about doing that the next time. So virtually everybody dropped out of the trauma system by about 1987, and what was very clear is that we were overloaded, in this 1,650-bed hospital, with trauma. You literally could not do elective surgery anymore, and the CAT scanners and other things were not available for diagnostic testing.

However, we began to use that to our advantage. We looked at outcome and we published—my wife being one of the major authors on many of the studies that demonstrated the obvious: If you put a dedicated team of people together, dealing with this disease on a constant basis, you improve outcome. And we showed that the preventable death rate, which was horrendous in Miami at one point, could go down to what is considered among the country's best.

I was given the privilege of being the physician in charge of designing this building—or standing in meetings listening to how it was going to be designed. But we didn't have any money to build the building; they forgot to mention that as they gave me the job. But that was nice, and, at that point, we had some powerful people in Congress, and we went to them with an expression of what we felt we could do not only for the community, but for the nation as a model of trauma care, education, and research.

And interestingly enough, the namesake of our research center, the William Lehman Injury Research Center, was a Congressman for 20 years, and he had an interesting experience that brought him into trauma care. His daughter Kathy was diagnosed with a brain tumor and was treated at National Institutes of Health, and the chief

neurosurgeon at that time, Ayubo Omiah [phonetic spelling], was well-known for his work in cancer research. When Kathy died, Mr. Lehman went to Dr. Omiah and said, "What can I do for the nation for health care? I'm in this powerful position; I really want to focus attention." And Omiah said, "You can help the nation focus on the neglected disease."

Trauma is the neglected disease. At the time that Omiah said that, Mr. Lehman, who was quite an astute individual said, I hadn't even thought of it as a disease, you know, it's just something bad that happens to people; you can't really plan for it. And in fact, Mr. Lehman instituted through the National Academy of Sciences one of the most important white papers that came out in this country for civilian trauma, called "Injury in America," which described the obvious, that it is a disease, and that the model that we use for preventative medicine and other things is totally applicable in this situation. The outcome of that [effort] was a blueprint that we used in developing the trauma center, but more importantly, a center for injury research was put in place in this country in the Centers for Disease Control. There is no NIH [institute for] trauma, by the way.

Part of what we did is realize that this is a disease that produces a lot of information that is useful in determining what is working and what is not working. The trouble is that trying to capture that information at the time you're saving lives is not a trivial endeavor. So we took as a challenge the opportunity to develop computer systems that could capture information at the point of care and do that by computerizing scheduling, note-writing, and other things such as collecting the basic information that we use to describe patients. This is all at a time where it's very difficult to even create what's called the [national] trauma registry. About 80 percent of the information that is included in the national requirements for trauma registry, we collect at the point of care from the physicians. I'm very proud of these numbers. We do good work; my colleagues work very hard at this disease.

The program we have includes a number of rescue systems. We are supported by Miami-Dade County, but in fact, because there are no trauma centers through the end of Key West, we provide care all the way down to the southern tip of the United States. We also provide support for the international peacekeeping endeavors in the Caribbean. The numbers have actually changed over the last few months, and we're almost at 50-50 now between air transport and

ground transport. And if you've ever driven in Miami, you'll understand why ground transport isn't useful anymore. You can't get from anyplace to anyplace on our highways, so we use air [transport] quite a bit. We're privileged that we have an excellent air rescue system and, like most communities where it's excellent, we have mapped the community so that no matter where an event occurs, we know a safe place to land helicopters.

There was actually an interesting experience when, after the trauma center opened up in 1992, as some of you may remember, in August of 1992, America experienced Hurricane Andrew, which at that point was considered its most significant natural disaster.

We were really excited about the trauma center and our rescue system. Somehow, somebody didn't think of flying the helicopters out of Miami-Dade as the hurricane came in, so we lost all of our helicopters. For most hurricane events, it's the day after the hurricane that hospitals really start experiencing things, and the many days after it as people decide that it's a good time to repair their roofs.

But to repair a roof, you must have at least one six-pack within you, and so that creates some enormous trauma opportunities.

And so we were left without helicopters and with a lot of trauma being generated, and I think we had one of the first cooperative agreements with the military. They provided Black Hawk helicopter support for Miami-Dade for six months. Fortunately, we tested the landing area to ensure that it could land a helicopter. It was the first time I saw the size of one of those coming down to that small building. I really didn't want to be there, but they assured me that we were safe, and in fact, we were. But because nobody had really thought about that coordination, we kind of responded very quickly, and—I say “we”—the plan was to put our local rescue people on the helicopters because that way we had radio contact with the helicopters.

So the military flew them and provided the medical evacuation, but we had the radios from our local people.

We see a lot of blunt trauma, and it's surprising that since you can't drive very fast on our highways that we can generate this kind of energy in crashes, but we clearly do. But we also see a lot of penetrating trauma, and we see more than most places in the country. We see a lot of burn trauma. We are, as many communities

in the country are, trying to prepare for the unthinkable, the natural or terrorist mass casualty situation.

This is really a challenge. I mean, we all get dressed up every once in a while and, you know, go through the motions, but I'm really not convinced that if you—in spite of, you know, learning a lot in New Orleans about poor coordination—that we're really on a national basis, you know, totally ready to respond, so I—certainly, I know this is a challenge for the military to enter into this, but I, for one, would welcome, you know, that coordination. I think these are very challenging problems to deal with.

Our resuscitation has eight units, and we're capable of doing surgery if we need to in a resuscitation bay. They're kind of like an emergency room bed on steroids. We can provide intensive care monitoring, we can put two patients in them if we need to, we can get somebody from the heliport into resuscitation in 30 seconds, and if we need to go to the operating rooms, we can do that in just less than a quarter of a minute.

One of the challenges for most hospitals that we also have in Jackson is that the design of hospitals is not necessarily conducive to trauma. You usually have your operating rooms in one place. If you have a heliport, it's in another place. Your CAT scanners are in another. And in the original design of Jackson, the heliport was on the 14th story of the building. We would travel down one elevator—and this is the case in many hospitals that have been retrofitted—we traveled down one, which always got stuck. I mean, it just never quite made it down there. Then you carry the patient over to the next elevator, which would always make it down, but then there was a quarter- of-a-mile run from where the elevators ended up to resuscitation, and I think the statistics reflected that we generated more trauma within the hospital than from outside the hospital when we did that.

I apologize, but this is trauma. We see a lot of tissue disruption, and if you don't know what to do, if the team doesn't know how to respond, you lose lives, you lose limbs. This isn't the kind of disease for which you can ask for help in many situations; you have got to know what you need to do. Trauma is not just an anatomic disease. Our greatest challenge is now, if you can get a patient beyond the point where their aortic hold has been sewed, is that we've disrupted their physiology for a long time before we have been able to correct

it. They may have had low oxygen, low blood flow, and they may have had bacteria floating around in places that weren't designed for it to live, and that results in a patient who often is very, very, very sick after injury. As our patients get better, we have a 60- bed patient floor, and we have a rehabilitation unit, for taking care of them.

This is one of America's most expensive diseases. If you look at the cost—the direct cost—of trauma to this nation, it ranks among the highest of all direct medical costs. If you add in indirect costs, and you calculate lost work and support for lost workers, it is America's most costly disease. Most communities have found it very difficult to maintain trauma systems. Many of the finest hospitals in the country have closed in the past because they just can't afford to do this.

We were very privileged when we opened the trauma center that the community agreed to tax itself an additional half penny on sales tax, and that provides additional revenue. This place would close in a second if we didn't have that kind of support.

Once again, if you look at the places that have been successful in providing training to civilian residents and military teams, they often have characteristics similar to this center. We have 20 full-time faculty that are devoted to the disease of trauma. These include surgeons, anesthesiologists, radiologists, and specialty surgeons in neurosurgery and orthopedics. We have large residency programs in each of the fields, and the fact that we're constantly in the process of training enables us to take on additional training responsibilities without challenge. We've had the privilege of training Air Force residents for about 20 years. We have fellowships, which are comprised of two-year post-residency training in critical care, trauma surgery, trauma radiology, and orthopedic trauma, that have been quite successful.

On a national basis today, in the major trauma meeting in the world for trauma surgeons—the AAST meeting will go on in the next few days—one of the major topics will be the fact that it is tough to fill fellowships today. Some of the best programs in the country are half-filled today because—I mean, it's easier to do colonoscopies and occasional laparoscopic colon resections as a surgeon than it is to stay up all night and operate on, you know, a bad liver injury. I understand that completely. However, as a nation,

we have to figure out some way to address that. We have been privileged in Miami to have a program that has not had a shortage of applicants, and we consider ourselves quite blessed to fill our spots.

I think anytime a place puts out a shingle and says we're ready to train somebody, it's a good thing if you train medical students. Medical students are the ones who, under any circumstance, will ask a question, particularly at 3:00 in the morning, say, on a part of anatomy that, you know, you can't possibly name because, you know, it's something that the medical student memorized, you know, for their anatomy course. So I think the context of a training environment has to include all of those things. So we're privileged, when we brought the Army Trauma Training Center in, of having that kind of environment.

We've been at this for a while, thinking about trauma curricula and the use of simulation in training. We have clinical laboratories where people can go and learn how to do laparoscopic surgery. We have a mass casualty experience using a pig preparation where our teams have learned how to deal with injuries in a non-human experience. We've been trying to address this problem, of the lights going out and no learning happening in lectures, by using of Web-based and handheld lectures. So the idea is, if you think you're going to be awake for a period of time, try to take your lecture then, rather than, you know, when we give it. And we think handheld computers are a major component of the future, and we've done a lot of work in those areas.

Here are some real challenges that are generic in trauma care, whether you're on a battlefield or in a civilian environment. In this civilian environment, very often with automobile crashes, we wouldn't know about a crash unless somebody in the car was awake and alert and could call, or somebody driving by locates the crash. What's happened in this country with the penetration of cell phones reaching about two per person, is that after a crash, we often get a hundred phone calls describing the crash. Now, this would be—this is an incredible addition to our understanding, except that each of them describes a different crash. In Miami, where we have I-95, north and south, you think some people would recognize, you know, that a certain car was going south, and that it was not on the Miami Beach exit but on another exit, but that is not always the case. On a recent motorcycle crash with a motorcycle burning on 95, everybody described that it was burning. Unfortunately, the person

had gotten away from his motorcycle. Five rescue vehicles had to be sent out because the descriptions placed the motorcycle across miles and miles of highway. Finally they found the motorcycle.

Once you make the decision that an event has occurred, clearly you need to bring the person to the right place, and whether that's a forward surgical hospital or it's the trauma hospital in a civilian environment, that is a critical decision. Injuries that are obvious are easy to recognize, and particularly with penetrating trauma—for example, a gunshot wound to the torso with a person who is in extremis—it doesn't take a lot of subtle detection to realize that they need care. Unfortunately, in many situations, people look pretty good initially, but may have sustained an injury that will later demonstrate itself. For example, if you had a laceration to the liver, it may not have bled significantly enough by the time that rescue sees you first to have picked it up. And if you've had a few drinks, you know, that caused your auto crash, you maybe feeling pretty good at the time that rescue sees you. So we have to figure out ways to recognize the occult.

Surgery has been very good at teaching onesies, you know, here's my clinical way of doing something. Now, I may have only had one survivor out of a hundred in using that technique, but that doesn't hold me back from expressing this is the way to do it. Now, there's an alternate approach to surgery, which is to actually use the evidence of the world experience and incorporate that in. So I may say, you know, this is the way I like to do it.

If you ask me, I've yet to have a survivor with this technique. The literature points to 100 percent survival with another technique. Maybe I should mention that to you. And we're trying to break away from the tradition.

Communication among caregivers has been a bit of a challenge. As I mentioned, I had done a combined M.D. and Ph.D. program and, I decided I was going to go into neurology, as my research was in the neurosciences. Well, the first thing is I look terrible in a bow tie, and the second is that—I hope there are no neurologists here—standing in front of a patient's room discussing the differential diagnosis of not breathing rather than intervening, always just didn't quite catch my interest. So I thought I'd like to be a surgeon, but the surgeons I saw really were excellent at communication, I mean, if screaming at any point was a good thing. And I sort of picked up on

the fact that no matter what the problem was, they created disruption in the operating room. I mean, it didn't matter what it was, there was chaos.

So I went to my chairman of surgery, who was one of the great men in surgery—Robert Zeppa, and I said, you know, I'm quiet, and I don't think I fit in. And he was good enough to let me work with some of the great surgeons who actually are quiet and, I kind of learned that you actually could have communication in an operating room, not throwing things, and I think that those kinds of things are very important as we create trauma teams.

We had "60 Minutes," the television show come in a few months ago, and they were very disappointed when they came to our resuscitation area because, if you look at the show "ER," everybody's screaming at each other, you know, "I want two cc's of saline," and so on. But, you know, our people create an environment like that in an aircraft cockpit. They actually know what they're supposed to do, they do their job, and they don't scream a lot. So I think communication is very critical, and the other side of communication that's critical is, I think, if somebody observes something that's wrong, no matter who they are, they should be able to speak up. We've kind of learned in aircraft crashes that if the captain kept on saying, go forward, and somebody noticed that the plane was running out of gas that this should be mentioned along the way. And I think there are certain things in a trauma resuscitation that the neurosurgeon—even the medical student—should be prepared to say, for instance, "you didn't attach the breathing equipment to that patient."

And in a perfect world, no matter who we are and how good we think we are, it's really nice occasionally to get advice, and it—the system should really make that possible. And we're working on that. Clearly, if you could take a picture in the operating room, and you saw, you know, the world's worst aortic injury, it'd be nice to find somebody around the country or world, show them that, say, you know, here's what I'm dealing with, and ask "do you have an idea?" So I think that's another important component.

Let me talk a little bit about a situation. This was actually captured by a traffic light camera in Munich, and my colleagues, who I am working with were kind enough to give this to me. But, whether it's penetrating trauma or car crashes, it's usually, to the

individual involved, a high-energy event. And as we talked about, when such an event occurs away from the main drag, one may not know about it unless there's a way to identify it. What's kind of exciting is that there are potentials for improving that. For those of you who've seen the General Motors OnStar product commercial, clearly, a car can call and say, "I've crashed." We've been doing research with General Motors and some of the other companies that point out that the signature of the crash that the car has experienced—which is available because the car has to know a lot about the crash to determine whether to deploy the air bags or pretension the seat belts—may help us predict whether somebody in the vehicle was injured.

Well, what we found very interesting. These are criteria that get you to the Ryder Trauma Center in Miami. If you don't meet one of these criteria, you get to go to a local emergency department. And these are common around the world today. In most cases, you have to look pretty beat up to get to a trauma center. What is interesting is the one on the bottom called Other: High Index of Suspicion. We believe that if an experienced person at the scene says, I'm worried, that's good enough. It's so good, in fact, that 60 percent of the time, when that is the only criteria used, people end up having life-threatening injuries. Now, one of the problems with that approach is the definition of an experienced person. I mean, if you've had somebody who was a Vietnam medic and kind of, has been at this for many, many years, they bring a lot of experience to a car crash, and they can give a lot of insight. As we are starting to retire those individuals, and perhaps training new ones, we have to ask whether the new individuals have those same skill sets. And the answer is probably no.

So you'd hate to be driving in a place in the country where somebody looks and says, hey, you look pretty, good, you know, it's good. And you actually have a bad liver injury.

One of the problems in the way the system is set up right now is that we kind of have breakdowns in communication. With air rescue, it's very detached. In transporting about half of the people, many times, air rescue never even sees the event. They land someplace away from the event in a safe landing zone. Ground rescue is there, extricates the person, and their job is to rapidly hand the patient over to air. Unfortunately, if they don't communicate anything about the event, then there may be missing information.

But we've improved upon that lack of communication by making sure that in most places, when the patient arrives, nobody asks any questions, so the answer is, we've got this new CAT scanner, just drop the patient off and we'll figure out what's wrong.

I would submit that we don't do that anywhere else in medicine. If you go to your doctor and you say, "this hurts," we actually ask you some questions. If it was a car crash or something, we should probably try to glean some information because we think we can make better decisions about the patient and predict certain types of injuries with better communication. And we've worked on this. I think education is the key, and once again, [so is] making education easily available so that one can pick up a lecture on a pocket PC or go the Web. You can learn some of the necessary things when you take on a rotation. And we think that the use of algorithms to support decisions can help also. For instance, it may be useful to have a reminder of what the car crash looked like—because rescue might have brought in a picture, they radioed you a picture, or they told you about it. So there are these kinds of things to think about.

I'll talk in a moment about things that we worry about as surgeons, but I think the more that we can help in decision-making the better it is. We don't want to create automatons that don't know anything except what the computer tells them to do, but I think the combination of education and point-of-care reminders is a good idea

In spite of the fact my group has had years of experience in developing computer systems, we've joined with a military medical development which is really outstanding. It is called BMIST, which stands for the Battlefield Medical Information System Tactical. I think the newest one is referred to as Joint Tactical. The idea is to make available a whole bunch of things that provide documentation and point-of-care reminders to clinicians. And we're very excited about being a part of this. This has integrated a whole bunch of things—dog tags that are very smart that soldiers can wear—so that not only can one transmit information in preparation for transferring a patient from one place to another, but if that information gets lost, it is still available with the patient. We think there may be a role for these methods in the civilian world.

I think any place that does this kind of work ought to be involved in research, and once again, most of the centers that have excelled in military trauma training have experiences in research.

We have the privilege of being involved in a whole bunch of things, and I think they play into being good at training. And just to brag, our support really ranges from the Department of Defense through industry.



One of the most important new focuses of our research is to look at the health services model, which basically means, to look at what we're doing on a continuing basis. So instead of the patient being the only thing we monitor, we're starting to look at ourselves and look at how we provide care. To do this kind of work and do it well, in trauma, one must capture information, as quickly as possible, about what the patient looked like so that it is clear what one is beginning with, and then one can evaluate the quality of care delivery. These aren't trivial issues. I talked about the importance of computer technology, but there's a lot of opportunity for research to figure out how to match man and machine so that at the point of care, these things are actually useful and not deterrents to providing care. And if we can capture information and provide point-of-care reminders, we really believe that we can improve the quality and process of care.

We've got some real problems in trauma. They haven't gone away, and some of them have extended. For instance, we still don't really know how to make the brain better. If it's injured, we know a little bit about how to treat it, but we don't know a lot. The recent experience in the war zones with improvised explosive devices has really put a challenge on the surgery of extremity injuries. And a bad decision made in surgery could mean the difference between a person having a functional limb with a prosthesis or not. So there's a lot that we have to do in that area.

The liver is still a bad organ when it gets badly injured and is tough to deal with. We're trying to deal with bleeding problems; those have been around since the beginning of time. What's gotten either a little better or worse is infection management. Maybe because we've had so many antibiotics around for a long time, we've selected for some bugs that are looking like the Andromeda strain, but they're tough to deal with. And the progression from infection to sepsis, where the next step is multi-organ system failure and then death, is just too common an experience in the world of trauma care. And there are some basic things: in blunt trauma, the biggest blood vessel in your body, the thoracic aorta, is often injured, resulting in immediate death. A few people don't have immediate death, and if we're really smart and we can figure out that a patient had that injury, and we repair it, the patient will do real well. If we're not smart, and we bring the patient into the hospital—and this is, you know, after a car crash—and some people look pretty good—one percent of people suffering such injuries will die per hour. So it's not a good injury to miss.

I'm actually going to talk about the Army Trauma Training Center now. And I will acknowledge my associates and my colleagues from the military who have worked on this have provided much of this background information. In 1992, the GAO voiced concern regarding national trauma readiness. By 1995, the National Defense Authorization Act required a demonstration program for military trauma training in civilian hospitals. And by 1997, there were some programs in place. In 1999, the joint program at Ben Taub in Texas was put in place, and then by 2001, it closed.

Since the opening of the trauma center in Miami in 1992, a number of us from Miami were out there saying, "hey, think of us, we're really a good place to have the military trauma training." When Ben Taub dropped out, people came to us the next day, and even though we were very enthusiastic, we weren't quite prepared to respond immediately, but we did, and I think that there are some lessons to be learned if you don't plan carefully for this. By 2001 to 2002, there was a whole bunch of programs that were in place, including ours. And as I said, I think if you look across many of these programs, you'll see similarities to the program that we have in Miami in terms of the breadth and depth of experience offered.

What's the program? We train 20 to 24 people [during] a 14-day rotation. When we first started it, we had more days available. I

think that's been the agreement regarding the availability of personnel. The rotation days are usually a pretty full for people and for the team members, and there are parts of the program where they work around the clock. One of the keys to the program is that individuals cannot come there and be doing something else; it has to be a full-time experience.

What we're trying to do is provide a structured program in a supervised zone of safety. We want to create a team of people, and this is probably not the kind of disease that you want to learn to treat on the job. We really need to provide it someplace else. We try to provide a common language and make it so that, whether you're dealing with the civilian trauma experience or the military, that you're prepared. When we started this, it was more focused on the individuals, asking how do you train a surgeon, and how do you train an anesthesiologist. Clearly our goal is not only to have those people trained, but end up with a real team, a coordinated approach, and we really want the focus to be on the patient, and we want not isolated silos of attention, but an integrated approach.

Here's what the program looks like: It's a 14-day program. We have a skills lab, where, using simulated materials, people who need experience in starting IVs and putting in chest tubes and intubating and doing surgical airways get that experience.

Then we have what's called our mass casualty. That's a pig lab preparation where the team is presented a number of injuries, one after the other. And in certain cases, there are "gotchas" that the next pig that comes in was exposed to biological weapons, so you have to kind of take that into account in your approach. The team very quickly learns, this isn't a simulation, this is the real thing, there's sweat that's coming out, there's, you know, people are really into it. It's a great training experience. The team is responsible for not only triaging and operating, but maintaining the life of the pig in a critical care environment for a number of hours.

Then the majority of time is spent in the clinical environment, and this is one of the keys. Like the training of a civilian resident who just gets to hang out in the operating room or use the sucker or learn skills in retracting tissue, but never learns how to put the stitches in or tie the knots, it's easy to bring people into a place and say, "just watch me, you know, you'll learn a lot." We have really designed this so that the Army Trauma Training Team is on the

front line. They are seeing the patients first, they're taking the patients to the OR, and they're following in the critical care unit.

It creates some interesting challenges when you're trying to train your residents and fellows at the same time, but when the environment is busy enough, you can actually do both.

There is a lot of post-action discussion, but once again, rather than the leaders from the outside being the critics, we try to develop a team evaluation capability. The Army Extremity Course at the Military Extremity Course is taught as part of this effort. It is a very critical training program because it deals with how to operate on injured limbs and preserve as much tissue as possible. The capstone is the end; for about a 36-hour period, the team is the front line, and they have to figure out how to manage their resources and sleep at different times. I mean, obviously, all of the attendants and I are there for backup of residents, but you sweat on this one, too, because for some reason—and I don't know exactly why the timing is that way—each time we have a capstone, Miami turns into a war zone again, so we just have an enormous clinical experience. And then the teams travel.

I know this is an economic conference. One of the things that we didn't have when we started this was any contract with anybody. We all thought this was a great idea, and you know, under my authority, we brought people in. My chairman pointed out that we actually needed to work these things out, so the university has a contract and the hospital has a contract for various services.

One of the challenges is that the Army has offices and also a simulator space in our facilities, and there are ten full-time personnel from the Army who are supposed to be there. There are two unfilled positions right now, and there are two contract civilians. In my recommendations, I will deal with that. The other costs are travel, lodging, training supplies, and as we move into handing people information technology that would hopefully be what they'd be using in the battlefield, that'll add some cost.

My colleague, Colonel John Armstrong, pointed out that the actual cost is equivalent to three trained soldiers. We're very proud of the teams we have trained, and the numbers are over 700 total people, with 100 general surgeons and a number of nurses. Interestingly enough, less than five percent of the people who have been involved have come back a second time—which is just the luck

of the draw. And some of the same forward surgical teams have come back, but there's been a complete turnover of personnel in those teams.

So just in terms of our evaluation, these are self-evaluations. The teams feel that they function better after the course than before it, and we're very proud of that. The Army Trauma Training Center won a DoD Center of Excellence in Combat Casualty Award Training, and it won the 2005 Patient Safety Award for team training. All the units have been deployed, and we occasionally get phone calls and other [comments to the effect] that, you know, basically articulate that I think we've done something useful.

Because of the training opportunity, we've leveraged that into other grants to study training, study the impact of information technology on training, and I think this may be one of the most important issues. Training has not been one of the major areas of scientific investigation in medicine, and I think the more we promote this to science, the more we apply a health services model, the more that, not only will military trauma care improve, but our national experience will improve.

Here's what we've learned: If you're going to build these training programs, they require a structured curriculum, there has to be an environment that supports that, and there has to be a focus not only on the individual, but the team. The site selection is very critical. Just dropping some people off at a hospital that occasionally sees trauma isn't going to do it. You need a multidisciplinary care, the place needs to be designed so that the full experience is there with all of the things, and there has to be a business plan in place. There has to be an integrated management infrastructure on the institutional side and the military side. These things don't work well when they're dropped in as a bubble within a larger institution.

There are some critical issues. How do you license somebody to practice within a state? Well, we've managed to facilitate that so all the caregivers have had the authorization to practice in the state of Florida. Miami, interestingly enough, is the most litigious community in the world, and addressing liability insurance is not a trivial consideration. But even in Miami, we figured out how to combine the military's protection and our own university protection.

When we started this at Miami, we were so thankful we had the opportunity to participate, that people like myself, you know, didn't

think of the money. If you don't think of the money, the people who do bean counting and do administrative management of hospitals enter into the discussion very quickly, and so there really has to be clarification of all of the expenses on the front end.

What we're seeing now in the training center is that as demands for clinical experts increase, people who have been told that they're stationed in the trauma center get deployed, and there has been a continuing battle to try to get the next contract in place. These are very, very important. Universities and hospitals today don't have the largesse to just accommodate—these things have to be done. My colleagues in the Army tell me that the usual challenges that arise any time you're dealing with long-distance logistics and other things are a problem.

We think that the issues that are similar to those in civilian care are important. We really must emphasize point-of-care computing applications, and improved documentation. Use a patient safety model. We make too many errors in medicine so we have got to constantly think about how to avoid them. We don't know the total effectiveness of simulation in trauma training, but this is an area that deserves continued investigation. The application of decision support tools to help us prevent problems is critical.

These are clearly opportunities to create platforms for training, training development and research. A strong recommendation that comes from my military colleagues is to consider better integration between the civilian administrative teams and the military—I know that's not a trivial consideration, but perhaps more full-time people who are ex-military who understand the system, may make for better program management.

Clearly, as I've said multiple times, there has to be a plan to provide continuing resources. Regarding dips in dollars and contracting issues, in most hospitals and medical environments and universities today, if the money dries up, it's really tough to maintain programs. Even if you're told, "don't worry, the contract is in the mail," it's just tough to deal with that. And I think that at all levels, we need a corporate strategy for trauma training at the individual provider level.

If it isn't clear, let me say it: I think that the civilian trauma training opportunity for the military is an excellent opportunity. You have to pick the right places and you have to pick the right people to

be involved. There certainly are models that make some sense; one model may be to have some real centralized, high-capability places and other places that respond to that. Some of the discussions I've heard involve providing military people full-time to trauma centers, and then if they're called up, they need to be there—they need to go to the military requirements—that may have some cachet. The problem is that if you pull a bunch of people out of a system, it's not easy to replace them. So I think we have to think about, you know, that as we're doing it. There are tremendous opportunities for research in this topic.

I'd like to acknowledge my colleagues, Colonel John Armstrong, Major Raymond Taub [phonetic], and Tommy Morris, who is the developer of the BMIST program. If there are any questions, I'd be happy to try to answer them. I asked for a vision of the future. Colonel Satava from DARPA sent me this; he said this is what we're going to be preparing for, in the civilian world. You know, just think about it. Those of you who know Dr. Satava, know that he's a forward thinker. This gets better. This may solve a lot of the problems we've been talking about. It may solve those difficult roadway problems.

Thank you all for your attention, and thank you for the privilege of speaking to you.

[Applause]

DR. AUGENSTEIN: I'm available for any questions.

MAJOR GENERAL KELLEY: What's the program's capacity?

DR. AUGENSTEIN: That's a very good question.

We're seeing about one team a month now, and actually because of some issues, it's probably about ten this year. I think we could double that. I really believe we could, and you know, maybe even increase above that because the trouble is you have the resources there, and they're on downtime if you're not using them.

Yes, sir.

VICE ADMIRAL OCKER: If you only have two weeks, do you require a certain amount of experience in trauma surgery beforehand or a certain amount of training or—

DR. AUGENSTEIN: That's a very good question, and we make none of the decisions about the teams.

These are forward surgical teams that have been called up, I guess under military organizational structures. Many of the general surgeons have had very little trauma experience since residency, and we've had one or two people who are obstetrics and gynecology physicians and, you know, obviously, that isn't, you know, usually the kind of trauma experience we deal with.

That being said, as we have looked at the teams and their performance, most of them do an excellent job. I mean, we really try to put them into the operative experience on tough cases and, you know, just let them—

VICE ADMIRAL OCKER: [Off microphone.]

DR. AUGENSTEIN: Yeah. So this isn't, you know, you watch me cut and sew. It's that you're there, and you're operating, and we evaluate that.

One of the areas that I would ask for help in is this: clearly there are experiences that are being gained every day on the battlefield. The more we know about those things, the more we get feedback about that, I think the more we can respond by changing the training program. And I think that has been a bit of a challenge to get that information, you know, back quickly.

Any other questions? Thank you again for the privilege of speaking here.

[Applause]

[A recess was taken before the proceedings continued.]



FOCUSING THE FORCE ON THE OPERATIONAL MISSION: INTERNATIONAL PERSPECTIVES

**MAJOR GENERAL LOUIS LILLYWHITE
COMMODORE MARGARET F. KAVANAGH
VICE MARSHALL TONY K. AUSTIN**

DR. PANNULLO: Let's get started again. The next session is entitled "Focusing the Force on the Operational Mission: International Perspectives." In this session, we will have three panelists from the international community. They are Major General Louis Lillywhite, Commodore Margaret Kavanagh, and Air Vice Marshal Tony Austin. All three of their home countries have separated the benefit mission from the operational mission to some extent, so their uniformed force focuses on the operational mission and maintains their clinical skills in civilian facilities. We will hear about their perspectives and lessons learned on that.

First is Major General Louis Lillywhite. He is the Director General of Medical Operational Capability of the United Kingdom's Defence Medical UK's operational medical services from point of wounding to return to duty or to discharge from active duty. Prior to his current position, he was Director General of the UK's Army Medical Services. He has also served as a member of the Defence Cost Study implementation team that significantly reduced the size of and reorganized the UK's medical services. In that capacity, he was responsible for negotiating the integration of a UK Army hospital into its neighboring National Health System hospital and for the rationalization of medical training on a tri-service basis. Major General Lillywhite trained in Cardiff. His clinical specialty is occupational medicine. He attended the junior division of the staff college and graduated from the Army Staff College. He completed an M.S. in 1989 at London University where he won the prize for top student.

The second speaker is Commodore Margaret Kavanagh from Canada. She is Commander and Director of General Health Services of the Canadian Forces Health Services Group. She served in

Bahrain during the 1990 Persian Gulf conflict. Her duties have included clinical general practice; operational medicine in the land, sea, and air environments; and human physiological research following the completion of her Master's degree in Medical Administration. She has functioned in the capacity of a senior physician in clinic and in hospital settings in Canada and Germany and as a staff officer in headquarters and has command experience as the Commanding Officer of a field ambulance and a Canadian Field hospital.

Commodore Kavanagh is a graduate of the University of Western Ontario under the Medical Officer Training Plan. She is a graduate of the NATO Defense College and is a certified health executive.

The third speaker on the panel is Air Vice Marshal Tony Austin from Australia. He is the director general of Defence Health Services of the Australian Department of Defence. Prior to his current role, he served as director of Health Services at Australia's Headquarters Air Command. He also commanded the Institute of Aviation Medicine of the Royal Australian Air Force. Air Vice Marshal Austin has completed the United States Air Force flight surgeon's course and has actively provided aviation medicine support to the Australian Defence Force within Australia and overseas, including a tour of Malaysia. Air Vice Marshal Austin was made a member of the Order of Australia in 1997 for services to aviation medicine. He holds a Bachelor of Medicine Bachelor of Surgery degree with honors and Master's of Public Health from the University of New South Wales. He also holds a diploma of Administrative Studies from the Royal Australian Air Force College and a diploma of Aviation Medicine from Otago, New Zealand.

Please welcome our first panelist, General Lillywhite.

MAJOR GENERAL LOUIS LILLYWHITE: I'll quickly start off with a couple of health warnings. Next, I'll move on to look at some of the principles that we actually use, particularly in our manpower planning, and then I'll look at what changes we've had in the last ten years and try and do at least a subjective assessment of them.²

2 Appendix B contains copies of the Microsoft PowerPoint slides that accompanied Major General Lillywhite's presentation.

In terms of the health warning, let me make it clear that the views I express are not necessarily those of the management; they're my own personal views.

Having said that, I've spent most of my career in command or in HQ staff posts, and I was involved directly in the major phase of expansion that we had in the Army Medical Services in the mid-1980s, and, as you heard, in the contraction studies that we had in the mid-1990s, and luckily, as Director General of the Army Medical Services in the modest expansion that we're actually undergoing at the present time.

The second point is really to reiterate what Admiral Ocker said. A country's medical service, and to a certain extent its military medical service, depends upon the wider medical services of that nation, and particularly how civilian health care is funded and provided in an individual nation.

Going on to, first of all, the general principles: The first principle that we in the United Kingdom have adopted for many years has been the principle of organizing for war and adapting for peace. This has been more of an issue, in fact, for the Army—as the Army, of course, fights not where it lives, but somewhere different—than it has for the Air Force, which tends to fight from where it lives. For instance, in the Cold War, [they fought] from the bases in the United Kingdom and Germany. And of course, the Navy fight in what they live in.

But of course, the issue is what do we actually organize for? And this continues to be a matter of debate within the United Kingdom. Do you organize for the most demanding—that is, large-scale, high-intensity warfighting;—or do we organize for the most likely, which tends to be small scale focused intervention, power projection, as we call it. [For] peace enforcement or peacekeeping? Or do we organize for both?

The problem is that when you actually look at the most demanding, you clearly have surpluses, compared to what you



require for the most likely. But, perhaps surprisingly, if you plan for the larger more demanding tasks, you also have deficiencies when you actually look at the most likely. There's a mismatch because the number of skill sets required for both is different.

And the reason why the (smaller) most likely can sometimes require more manpower than the (larger) more demanding is because of what we call harmony rules. And this reiterates a point that was also made by Admiral Ocker and because it's so important, I actually want to dwell on it for a moment. In a volunteer army, we depend upon the individual's willingness to continue serving. And there is a general recognition that disruption to an individual's personal life is a major factor in retention, particularly for families. And therefore, we have set harmony rules for ourselves. Those harmony rules differ by service—and they're on the slide—but for the Army, it's expected that units—formed units—will only spend six months [out of every 13] on operations, and an individual will spend no more than 415 days deployed in 30 months. And you also see the Navy and the Air Force have harmony rules there on the slide.

I'd like to emphasize that these rules are not absolute. We accept that harmony rules will be broken for major operations. Harmony rules are also being broken today, particularly for shortage groups, because of the intensity of combat operations around the world. And the way we apply them varies with some specialist groups. And in particular, our surgeons and anesthetists, who we tend to actually deploy for far shorter periods, but much more frequently.

As well as guiding us in how we use personnel, the harmony rules are important in setting appropriate manpower levels, and we spend a lot of time modeling the various strategic scenarios that our government has sent us in the military and identifying how many men we require in order to actually meet them. It's been a particularly useful approach and in my last job, it led to an uplift of 400 people because we were able to show mathematically that without that uplift, we could not meet the Army's, and thus the government's strategic intent. So actually, knowing what the government's strategic intent is and being able to actually model that has been an important factor in actually ensuring that the medical services actually have the right number of people.

Harmony, though, does pose problems in mixed-service units, and we have been trying to mix Army-Navy and Navy and Air Force, particularly at Role Three (hospital level support). But the issue then arises: should the medical personnel of the Navy, Air Force and Army follow the harmony rules of their own service—which means that they’re will be rotating at different times? Or should we have something common only to the medical services? This is an issue that we haven’t really resolved.

So we’ve now decided how many people we want. But how many of these should be uniformed? In looking at uniformed establishments, we have said we will only have uniformed personnel if it’s essential. The first groups considered essential are those required to deploy on operations. We currently assume that we will only have uniformed personnel on deployed operations. There has been a slight move away from that in that we’ve been playing with—and I’ll use the word “playing” advisedly—we’ve been playing with civilian contractors, but they have not actually proved to be available in the numbers required, and there are major restrictions on their use that adversely impact on operational effectiveness, which I’ll go into in questions if people are interested.

The second criteria for essentiality of uniformed personnel is whether a post requires a skill set which only uniformed personnel have. And by that, I’m talking primarily about military skills. I’ll come back to medical skills in a moment. Also, we believe as a result of experience—bad experience—that essential leadership in command and staff posts must be filled by military, even if it’s for a peacetime function. We tried both [military and civilian leadership] in our health service in Germany and in what was called the Secondary Care Agency. We put it under civilian leadership because it was felt that civilians would actually have better leadership skills in those particular peacetime areas than the uniformed individuals. And, maybe they did, but nobody would follow them, and therefore, those skills counted for nothing. And the final criterion for essentiality, of course, is whether uniformed personnel are cheaper than civilians. Otherwise, if these three criteria are not met by a post, the principle we follow is that it should be filled by a civilian.

Having decided what posts should be filled by uniformed personnel, there’s then the issue as to whether they should be filled by regulars or by Reservists.

We clearly use regulars if the post is clearly full time. So a battalion medical officer in a battalion that is a regular battalion must have a full-time uniformed doctor in it, and therefore he must be regular. The second major requirement for having a regular instead of a reservist is if the position is required to deploy on short notice. And our high readiness troops are held at notice that ranges from four hours through 48 hours, 72 hours, a week, and then I think it's 31 days. We have made an exception in the medical area for one reserve hospital which we expect to mobilize at 30 days and have given it some regular reinforcement to facilitate this, but otherwise those who are required to deploy at short notice should be regulars.

And, in deciding between regular and reservist, there's also the question of are there skills that are only available to regular personnel. Interestingly, this is becoming an issue in the medical area; as the civilian world changes the way it delivers its medical services, as we go to endoscopic surgery for example, we are finding that civilians that previously were assumed to have the necessary clinical skills to use on operations no longer have those skills. And there is increasingly an issue as to whether or not we are going to be able to sustain within our reservists those clinical skills that are necessary to actually use on the battlefield.

How we address that is not yet clear. Simulation, for example, may have a part to play. Using some full-time service—given they can spare more time—for reservists in order to do training such as what was described in the last lecture is another way to respond, but we clearly are going to have to address the changes in civilian medicine. Otherwise, unless those criteria apply (high readiness or skills only held by Regulars), then the post will be filled by a reservist.

The third issue is the standard of care, which must bear directly upon the number and type of personnel that are required. For the Cold War, up until the Wall came down, in the United Kingdom, we concentrated on quantity instead of quality. Given the casualty rates both in the armed forces and back in the United Kingdom base, there were not sufficient medical personnel available to provide the same quality of care that was available in peacetime, and therefore, our principle was to provide the greatest good for the greatest number. And that meant austere medical provision with high mortality rates.

Post-Cold War, we have moved to a providing high quality of care, but there is and remains an issue as to what that means. Are we providing care that is based on outcome, or are we providing care that is based on civilian standards, and if so, which ones?

If we were to apply some of the civilian standards, it would require more manpower, for example, than if you actually consider a system that is based on outcome. And in some cases, we can actually demonstrate that the outcome on military operations is actually better than in the civilian world, even though the standard that we use could in some cases be said to be lower than in civilian hospitals, such as some types of equipment and the ratio of, for example, intensive care nurses to patients. So there is an issue in terms of outcome and standards, and that has not yet been resolved.

We then come on to the color of cloth, that is, Army, Navy, Air Force. There is a general acceptance—and indeed a general staff insistence—that the medical personnel at Role One—that is within the fighting ships, the destroyers, the battalions, the Air Force squadrons—should be of the same color cloth as the units they’re supporting: Army supporting Army, Navy supporting Navy, Air Force supporting Air Force. There’s also a belief that that should ideally apply at Role Two as well. Not quite as strong, but nevertheless, it is the view of our customers, who are the three services.

Back in the mid-1980s, all three services quite strongly expressed the view that at Role Three, that is, in the deployed hospitals, medical personnel could be of any service. That view still holds, but is not quite as strong and with the proviso that it must only hold if it is consistent with retention. And I will mention more of that in a moment.

Moving on to how we apply some of those principles and how we actually apply peace versus operational medical support, in the area of primary care, our operational establishments have always been theoretically sufficient to cover both the operational requirement and the peacetime requirement. Back in the 16th century—we tend to be a bit traditional in the United Kingdom—battalions were responsible for their own medical support and now every one of our battalions, even if it’s only 600 strong, still retains its medical officer. And that gives us sufficient medical officers, in theory, to provide operational requirements—primary care.

However, frequent deployments, first in Northern Ireland in the 1970s and continuing since then, led to additional civilian personnel being required to provide continuity and care for dependents. There were other pressures as well; in the 1970s, we did not have that many female medical officers in our battalions, but we do provide care to dependents abroad, and there was an increasing demand that we provide, for example, females as doctors to actually look after female patients. And there was also a need for continuity of care. So we have actually bolstered our primary care establishments with civilians, but not with extra military.

In terms of training, we have now moved to tri-service training. These are either provided within our own in-house training facilities or, increasingly, at the professional level, i.e. professional training in partnership with civilian universities or with a civilian university. In terms of how well it's gone, generally speaking, it's been a success. But we continue to struggle with differences in single service ethos that continue to pose irritations. Some of those differences are relatively simple and you might think should not pose problems.

For example, Army recruits coming out of training are quite fit. And it has always been Army policy that during Phase Two training—that is, the professional training—they should continue with their fitness training. And to remind them that they're in the Army, [it has also been Army policy] that they should continue to do things like guard duties. The Air Force medical personnel have always had other people to guard them, so they do not have the same requirement and also have a philosophy that when you are training, time should not be wasted on chores like guarding. Now, putting RAF and Army together in a training organization, doing the same courses, poses problems when your Army man starts failing exams because he argues that he has not had the time to revise because he's been doing guards and fitness training where his Air Force and Naval colleagues have been able to revise instead. They're minor irritations, but real on the ground.

Also, in the tri-Service environment there tends to be a reversion to what one might call the lowest common factor. When there are various pressures on the organization, whether financial pressures, or limitation on manpower resources, then it tends to eliminate those things that are not common to all three Services. A good example of that is when I went to visit training last year; looking at some subunit training, I found that they weren't carrying

weapons. And when I asked why they weren't carrying weapons, the reasons I was given was that first, it was a bit too difficult, and second, the Navy members amongst them did not carry weapons when they were actually managing casualties in ships. Weapons are an irritation, but when you were on the streets of Belfast in the 1970s/1980s or Basra today, they're a rather essential irritation, and if we don't actually train with them in peace, then we get things wrong in operations.

So a tri-Service training environment requires the single-service "customer agent" to be very vigilant to ensure that a tri-service organization continues to provide the training that is required by each specific service. In terms of how we're actually getting on with our university partners, there has been excellent success professionally, but again, a lack of military ethos continues to be a concern. And we have somehow got to arrange the training so that we continue to remain military people rather than [becoming] civilians in uniform.

Dental services are also tri-service. That, I think, has made them more accountable. That was the intention, and it was meant to also make [the dentists] more flexible. In terms of how that has worked, generally speaking, it has been a success, but they, too, have ethos issues for instance, with individuals feeling that they're no longer a member of their single service and feeling that they're being disadvantaged as a result by, for example, not being able to do the type of exercise or adventure training that those single-service individuals undertake. But that has not actually shown any objective impact, I have to say, on output. Regrettably, however, it has not actually led to the flexibility that we sought, and, the differences in fitness rates between the services have continued. The idea was that if you put the Navy, Army, and Air Force together, then the Army's particularly poor rates in dental fitness might actually be improved by the flexibility that amalgamation would bring. That has not worked, and the reasons for it not working are probably quite complex, and I'm not sure we fully understand them. It was hoped that amalgamation would also lead to civilianization, but that has not transpired because it appears that civilians are more expensive than military.

Secondary care: Secondary care was where the big bucks were, and in the 1990s, accounted for the majority of the 530-odd million pounds in savings that were actually extracted at that time from the

medical services. Pre-'94, our peacetime hospitals were established on the basis that you organize for war and adapt for peace; our peacetime hospitals were all deployable. So the rear hospital that went on the first Gulf War was our second major hospital, located in Aldershot, England, from where it deployed as 33 Field Hospital to the Gulf. And when we required a forward field hospital—or a few forward field hospitals—one of the ones that we chose, for example, was from Hanover, in Germany, whose role in war was a forward field hospital close to the inter-German border. But the problem was, that if you actually deploy them, you leave a big hole in peacetime medical care, and that caused major problems. From the government's perspective, we were also duplicating the health service that they were funding, the National Health Service. In other words, they were paying twice, from their perspective.

Military hospitals were also expensive and apparently inefficient. Well, they were expensive, but the inefficiency was more apparent than real. To a certain extent, I blame my predecessors for not challenging that because they were costed only on their clinical output when actually they should also have been costed on their military output in terms of the number of teams deployed and the times deployed. But we were paying for a significant civilian workforce, which did not appear to be actually contributing to any operational efficiency.

So a number of proposals were made. It was proposed that we close the military hospitals and form instead cadre deployable hospitals. A cadre deployable hospital is about 120 people, which, in essence, comprise the headquarters and support squadron of a deployable hospital, but include a very small number of clinicians, designed to ensure that when it does deploy, it is clinically ready to receive the clinical reinforcements.

The other clinicians were to be embedded in civilian hospitals, where they were to be available for training and deployment. Financial arrangements were made whereby the National Health Service paid for the work that our uniformed clinicians undertook whilst in turn, the Ministry of Defense paid for the care of any uniformed patients that the NHS treated. And a tri-service agency was created that was responsible for managing the clinicians in peacetime and for commissioning care for servicemen.

Evaluation: I don't think anybody would actually agree that I've exaggerated when I say it was almost a disaster. In fact, I suspect that 90 percent of those in the United Kingdom Armed services—not just medical—would say that I probably understated the case. We got it very badly wrong. As a result, clinicians voted with their feet. There was a complete underestimation of the ability of health professionals to gain employment elsewhere. So when we moved hospitals, the clinicians said "goodbye". The hospitals moved, and they stood still.

Matters were not helped by us putting a mandatory 18-month delay on any exits, which also upset those that weren't planning to leave and made them think that they might be next. We then found that the civilian hospitals were unable or unwilling to give servicemen priority for treatment, other than for clinical reasons. They got priority for clinical reasons, but the clinicians in the civilian hospitals did not see why a soldier who could still run, although with a minor limp, should have priority over Mrs. Bloggs, who at 70, couldn't walk at all.

We also had conflicting aims. The tri-service agency responsible for looking after these clinical personnel, quite reasonably from the agency's own perspective, concentrated on relations with the National Health Service, i.e. on who they were receiving money from and paying money to. But they did this, perhaps not consciously, but in practice, at the expense of meeting the single service needs. And the individual clinicians also suddenly found that they had split loyalties. We breed people in the Armed Forces to have loyalty. They went into the National Health Service with loyalty to their military bosses, but they suddenly found themselves part of a civilian endeavor, which actually had to meet requirements, and the two were sometimes in conflict. So who do they give priority to?

And as a result of these conflicts, the organization that evolved met neither the treatment needs of the Armed Forces in the United Kingdom, nor provided the clinical manpower for the single services. We are correcting this, and getting much better, but still have some way to go. For example, the civilian-led Agency initially responsible for looking after our military personnel has been disbanded and the personnel moved to being looked after by a military-led Agency instead.

I should just make an exception in respect of timely hospital care for our personnel. In Germany, our contracts for treatment with the German hospitals have proved a major benefit, and indeed, we've just renewed the contract where the cost of secondary care has dropped quite significantly, bucking the trend of inflation elsewhere. I can give you some tips!

Returning to our clinicians working in the NHS. There have also been some fairly adverse cultural implications. It led to the development of a gap between our uniformed clinicians in civilian hospitals and those who command and manage them on operations but no longer command and manage them in peacetime. And that manifested in the Second Gulf War when we deployed. You put a load of precious clinicians—clinicians are always precious—into the field, managed by commanders and administrators that they had not actually worked with in peacetime, and of course (from the clinicians' perspective), the administrators, managers and commanders never got it right, did they?

Also, there were some fairly significant differences that we'd not recognized between the single services. For example, in the Army, because of the fact that we deploy as subunits quite frequently, there are a large number of officers amongst the nurses. The Navy, who only deploys large groups, doesn't need as many officers. When you put the two together, you end up with wards where you have very experienced Navy NCOs, but with quite a few junior Army officers. Who actually runs the ward? Again, because of the need for fitness in the Army, in the Army some ranks tend to serve 22 years, whereas in the Air Force, some other ranks serve 34 years. So, therefore, promotion in the Army is quicker—because they leave earlier—than in the Air Force. But when you put the two together, you end up with the more experienced personnel again being of a lower rank. Who's in charge of the laboratory? And there were quite a lot of issues like that that actually caused a fairly serious friction regarding how a unit actually runs.

And also, our mid-1990s reorganization did not appear to be future-proof. If you look at radiology, there was a feeling that with telemedicine coming on-stream, and since you can read radiographs from a distance, perhaps you do not need as many radiologists on your establishments as you did in the past. However, interventional radiology now seems to be getting to a point where it actually may be quite useful in the field. But without the radiologist to do it, we

have difficulty in intellectually developing the policy for that, and we don't have the right people at the moment.

There is a similar case in pathology: Why did we need culture and sensitivity in the field? The casualties were going to get back to the United Kingdom and would be there by the time the results were available, would they not? But there's some fairly nifty new means of actually doing your culture and sensitivity and getting rapid results, but more importantly, we have biological warfare on the horizon. We need the right pathologists, at least in part, to do that.

There's also the need to be sensitive to ethos-related issues. Child protection is an increasingly sensitive issue in the United Kingdom, but it has to be managed within the context of the environment—the social environment—in which the child and the parent exist. At the moment, abroad, we actually rely on ex-uniformed pediatricians to manage those issues, with sensitivity to the military environment, the position of the commanding officer, and how the family live within the environment.

But what is going to happen when they retire? Are we going to be able to find pediatricians who are sensitive to the ethos?

And I think, in some cases (again, I am talking about the- mid-nineties), there were plain errors of judgment, such as eliminating gynecology because of the thinking that a mixture of general surgeons and general practitioners can manage women's complaints, can't they?

So in summary, military medical services should indeed be operationally focused, but we've got to remember the peacetime needs of our patients. And, the peacetime place of our patients is where we live. And they've got to be accounted for. We've also got to remember that medical personnel must have a professionally fulfilling place of work when not deployed. And the place of work in peacetime must promote and sustain military ethos. More importantly, changes affecting health professionals must involve them in planning, must be future-proof, and must be sensitively handled. Anybody can design change that will work tomorrow, but they must also seek to develop a change that will work the day after tomorrow and on into the future, and that is not so easy.

Each of the slides I showed had some kind of military background. All of them, except for the last, were intended to remind us about the patient and the medical services. The last one is

a camel. I'm sure all of you know that a camel is actually meant to be a horse that was designed by a committee. We've got to be careful that our health services don't end up in the same way.

Thank you.

[Applause]

DR. PANNULLO: Next up will be Commodore Kavanagh. We'll have an opportunity for questions for the three panelists at the end.

COMMODORE MARGARET KAVANAGH: Thank you very much for the opportunity to address this very auspicious group. What I've done with my presentation today is to try and give you a bit of an overview of what we are about. I've tried to also focus my remarks based upon some feedback we've had from some of the visitors from PA&E who tried twice to get to Ottawa but due to aircraft issues couldn't. We have had long telephone conversations though, and I've discussed their questions with my staff so I have gotten some of the answers to their questions. Despite Mother Nature foiling their visit attempts, they're always welcome. I will try to focus my comments there, but if there are other questions after the discussion, I would be happy to take them.³

As you heard in my biography, I am a physician by profession, but make no mistake, I'm not the Surgeon General. I'm the bean counter of the organization, the Director General and the Commander of the Health Services. This is a change that we've undergone as part of our reform in the last few years. My predecessor was a Medical Service Corps Officer and just by happenstance, it's now a Physician. Next, it could be a Dental Officer, or another Medical Service Corps Officer, or a Physician. Those are the three occupations in our world that are eligible to become the Director General.



³ Appendix C contains copies of the Microsoft PowerPoint slides that accompanied Commodore Kavanagh's presentation.

I am the commander of the organization while the leader of our medical professional community is the Surgeon General. I also have a senior Dental Officer, a Colonel, who is the leader of our dental community. They are the clinical leaders and do not hold command appointments, but they certainly have the professional responsibilities for those various disciplines.

One of the interesting things that almost happened this year occurred when we went through the succession planning process. We came very close to having an operator appointed as the head of our organization. It was very close. It's a bad idea. I believe you have to be in the health care business to understand the intricacies of the health care world and to be able to translate it to the commanders, rather than the other way around.

As I said, what I'm going to try and do is just give a quick overview of who we are and what we are, and then my intention is to focus on the issues that I was particularly asked to talk about in our context.

Canada is a big country with four time zones and lots and lots of nothing that's always frozen. I, fortunately, live in the semi-warm part. We have recently, as some of you who've been involved with us may know, undergone a reform called RX2000 that started in the year 2000. We're well into the implementation phase of that, and one of the requirements was to rearrange our command structure. We used to be parceled about amongst the Army, Navy and Air Force, and had all three services trying to direct how to spend our money and direct what we were to do. We, the health command, or health services, had no control over the resources, human or financial.

I do now. The majority of medical and dental personnel report through me. The few exceptions are the personnel posted to the ships, our physician's assistants and a handful of medical officers. And there are a couple unique places in the Air Forces, very unique, in the aviation training squadron and so on. So 97 percent of the health services personnel in Canada are under my direct command.

I'm going to show you our structure. The two coasts are represented by two fairly large units that respond to the Navy. The Army is represented by 4 Health Services Group, which is based in Montreal. The Air Force actually crosses the whole country and is

based out of Winnipeg in Manitoba. They are responsible for all the clinics and organizations across Canada that support the Air Force.

We do have one unique outlier, the national capital region in Ottawa, that we decided is just too unique for anybody to take on, so we look after them directly from the headquarters in Ottawa.

And we have a few other national units: our medical equipment depot, the Environmental Medicine Establishment at the Defense and Civil Institute of Environmental Medicine in Toronto (predominantly research), the Canadian Field Hospital which is in Petawawa, our school, a combined medical and dental training facility, and our national dental unit.

As I said, as a one-star officer, I'm the commander of the group, and I report to the Assistant Deputy Minister Human Resources Military, a staff officer in National Defense Headquarters.

We are a smaller military; I think most of you know that. Our focus is peace support operations, but we are pretty active, and since 1990, the health service alone have been involved in 40 international missions, 13 domestic ones and continental ones, including when the Red River flooded most of southern Manitoba and parts of North Dakota, and the ice storm that blacked out Montreal and a good bit of the Eastern Seaboard—we spent a fair bit of time supporting those missions.

All of our deployments are very challenging because we're critically short of uniformed personnel. I don't think this is a surprise in any modern military. From our physician perspective, we are 50 percent short in uniformed Captains and Majors, which are the real working ranks that see patients. We have no shortage of half-colonels; it's the ones that do the real patient work that we're 50 percent short on. We have a critical shortage in pharmacists; we have shortages of nurses, and physician's assistants—basically, the only thing we're not short of is dental officers. We have lots of dentists.

The organization profile: I said we have about 5,500 uniformed health services personnel and 600 civilian contractors. The contractors are predominantly clinical personnel, as in physicians, psychiatrists, psychologists, and that type of personnel.

I've heard it said a couple times, here, that civilians and contractors are cheaper. I would challenge that. I think you get the most expensive option for the least bang for your buck. I do not

believe they're cheaper in the long term; often your uniformed personnel are by far and away a better bang for your buck. What it does give us is some flexibility to be able to fill in quicker in certain cases, attract people to some of our less desirable locations by paying them a little more, and things like that. So it's a fallacy. For the whole [Canadian forces] population, we have 77 locations that can provide everything from just a med tech who you can come in to see and who will send you downtown to see a family doc, to some specialized care.

We no longer run hospitals in the Canadian forces. We are a primary care organization by and large and we purchase almost all of our Role Three support from the civilian health care sector. Now, I think it's fairly well-known that we have a socialized medicine system in Canada, a national one, but run individually by each province, which in itself presents challenges. We started closing our military hospitals in about 1995 due to one of the provinces withdrawing their funding for us looking after some of our veterans. When we lost the veteran population, we lost the patient numbers needed to practice the clinical skill needs, and so on, of our specialists. We ended up sticking to the business at home that we can do well, and buying the services that we could no longer practice because we no longer had the patient population.

At the same time, we were undergoing an operational medicine review, and not unlike what I hear discussed today we had to make some tough decisions on what specialists we were going to keep. We ended up with the ones that you see on the slide. These are the uniformed health services professionals that we have in our military.

Once upon a time, we did have [ear, nose, throat] specialists, ophthalmologists, obstetrics, gynecology, pathology, physical medicine, rehab, and cardiology. We no longer have those. For our role, which is predominantly Role Two, we can't even technically do true Role Three—we're a Role Two plus organization when we deploy—we can provide these specialties - Internal Medicine, General & Orthopedic Surgery, Anesthesia, Psychiatry and Diagnostic Imaging, and the general duty physicians. We also have dentists as well as prosthodontics, periodontics, endodontics and oral surgeons.

We lump our aviation medicine, public health, occupational medicine and undersea medicine within the general duty physician's

roles. So we do have that capability. As a matter of fact, we complete much of our advanced aviation medicine training and undersea medicine here in here in the United States from the U.S. Air Force or the U.S. Navy. We do a little bit of training with the UK, but the vast majority we do with the U.S. Much of our dental specialty training, we also do in the U.S., and we're certainly very grateful for all those opportunities, because it's invaluable experience.

Our rule of thumb is that if you're not needed on deployed operations, you're not in uniform. This determines the limited range of clinical specialists in the Canadian forces. As an example, for humanitarian missions we have a disaster response team. We don't have pediatricians in the Canadian forces because they would not be part of our usual operational requirement. We would go up to the civilian community and if someone wanted to volunteer to come along, we'd bring them with us. But by the nature of that mission, they're generally not shooting at you. We feel it's safe enough to take on that role, but we do not have that expertise.

I understand that you were particularly interested in some of our approaches to our physician specialists. Prior to the reform in 2001, we took the tack that if you weren't going to command and take all the normal formal military training, that you weren't going to be allowed to go up to the rank of Lieutenant Colonel or Colonel, and we were going to cap you at the rank of Major. That was decidedly unpopular, and we were losing specialists. We ended up, therefore, creating what we call a clinical career progression so our senior clinicians can rise to the rank of Lieutenant Colonel and Colonel with the requisite pay scales to go with them and have all the privileges and recognition, but they're precluded from commanding. When we deploy to Kabul we may have a Lieutenant Colonel commanding the hospital; he may have a Colonel surgeon working for him, but denied command. It's a question of recognizing their clinical expertise because many of these people are leaders in the civilian community, they are academics, and they hold clinical appointments in hospitals, so it was an important thing to be recognized that way, and it certainly has improved the retention, to a point. . But I do think it's important to recognize their clinical expertise because they truly are clinical leaders.

Maintenance of clinical skills: I know we've talked a lot about it today, and I've alluded to it in what I already said. Our specialists

work predominantly, almost 100 percent of the time, in the civilian community working on civilian patients, and we still continue to buy specialist care because there's a mismatch in where the patients are and where the clinicians are. Vancouver's a very popular place, for some reason so we have a lot of our clinical specialists working in Vancouver General. There's a mismatch there because we actually have very few uniformed personnel in Vancouver. However, the specialists working there can be called for deployment, and when we need them their skills are first-rate.

One of the lessons I've picked up today is the need to train in teams, and we're not quite there yet to be honest. We're focusing on the clinical specialists, the supporting casts of operating room nurses and operating room techs, intensive care nurses and so on. Some of them are there, but they're not really there in the team concept, so we're not quite to that point yet. A part of our primary care reform is to put a civilian backbone into some of our primary care clinics in order to be able to withdraw our general duty medical officers, nurses or physician's assistants, etc., to allow them additional time for training. If they are your primary clinicians and you take them away, they're not there to look after the soldiers when they're at home in garrison. So we've built a civilian backbone on our primary care model that still allows the uniformed people to be on the base and look after the military personnel, but be removed to do training. We believe it's important that you cannot completely civilianize these organizations because you need to be able to have a uniformed person who understands the business to advise the commanders on occupational and operational medicine issues. The civilians learn it, but they never quite get the same nuances as those who actually live and breathe it in uniform.

Some of the challenges: It can be difficult extracting these providers. You have to give them lots of warning. You need to have an appropriate set of rotations and schedules. They'll tolerate the short notice—if you pull them out in a hurry—once in a while, but if it becomes the norm, they don't tolerate it.

We do have some difficulty finding clinical placements in the Canadian health care system, physicians' assistants only exist in the military; they are not a civilian practitioner yet. As a matter of fact, we're working very closely with the CMA to create that. We may actually introduce to the Canadian health care system a new provider that currently does not exist, from the military to the

civilian community, as opposed to the other way around. They're very interested in what these people can do. And, again, we've learned an awful lot from the American model and we're moving that way. But because we're not there right now and not that well-known, it's a challenge finding clinical placements for them. Licensing issues and all those things that everyone struggles with—licenses in Canada are a provincial jurisdiction, not a federal one. There's always competition for these clinical placements. There's more training needed, perhaps, than spaces available. That's always a challenge, and as we've already heard, if you civilianize these people too long, you can have a risk of losing your military ethos.

Our specialists generally deploy for 56 days at a time. We used to do six months but that didn't work, and resulted in a loss of clinical skills, so we went down to three months. Fifty-six days may sound like an odd number, but it's based upon the fact that in our organization, after 60 days, there are certain entitlements that kick in. You're entitled to go home on a holiday, etc., so by keeping it under 60 days, you preclude those entitlements. Frankly, the specialists like that and are quite happy with it. It just means they deploy more often, but for shorter periods of time.

We do have a practice leader identified in each of our clinical specialties; there are senior surgeons, senior anesthetists, senior radiologists, and even a senior nurse. They help our operators identify those that are the most clinically current and ready to go. It's basically the professional network working hand-in-glove with the chain of command to make sure we have the right people at the right time ready to go with both their military and clinical skills.

Basically, that concludes what I wanted to say.

One other thing I noted when we were in the discussions this morning was the talk about what services we actually provide to our members. We use a document called a spectrum of care, which has five specific principles laid out under which we decide what our members are going to receive so that you avoid the Cadillac syndrome. It's comparable to what is provided in the civilian sector and levels the playing field somewhat across the country. Basically, the first underlying principle is that it must be medically necessary and provided by a recommended health care professional.

Scientific, evidence-based medicine is important to us. We are not in the holistic medicine business at all. Further, any treatment

provided has to be funded by at least one province or federal agency somewhere in Canada. We used to use a rule of thumb that it needed to be funded by the majority of provinces, but that left out some things, so then we went down to the lowest denominator of a single province providing it. We don't fund things that are of a cosmetic nature or purely on an experimental basis.

The five principles that we base the decision upon as to what we provide our military members is kept within that context to avoid the sense that our members are getting a Cadillac service. While the uniform half of the Department of National Defense doesn't seem to mind, the civilian half minds it a whole lot. We have to be careful with that perception.

Thank you. I'll be happy to take any questions.

[Applause]

DR. PANNULLO: Next is Air Vice Marshal Tony Austin from Australia.

VICE MARSHAL TONY AUSTIN: Ladies and gentlemen, thank you very much indeed for the invitation to address you today. It's really an honor and a privilege to be in front of an audience like this.

One of the things that wasn't in my CV, by the way, was the fact that I had the pleasure of working for Air Combat Command as chief of Flight Medicine nearly ten years ago. And I soon realized that one of the major contributions that I could make to that august organization was to actually capitalize on my Australianism, and that is simply to be politically incorrect. No one else around the headquarters was game, so it was a useful role, and I hope to follow through on that theme today.

Very quickly—because we are a little bit pressed for time, and I think probably the main bang for the buck will come from the questions as much as the presentations—what I'd like to do is give you a bit of background as to where I come from, or where Australia's coming from, so you can understand the context in



which I operate. Firstly, the most important thing you need to understand is that in Australia we do actually have a very effective publicly funded health care system. It's a little bit intermediate, if you like, between the UK's NHS system and the Canadian system. It is free at point of delivery to the patient, it's funded through a national tax levy of 1.7 percent on taxable income, and the majority of quality health care in Australia is actually delivered through the public sector, not through the private sector. So it might sound somewhat ironical, but if I was to have a major medical condition, or my wife or my kids were to have such a condition, I would go to a public hospital, I would not go to a private hospital. The private hospitals are essentially still dealing in the space of elective surgery or nonessential-type activities. So it's quite a different theme.

Now, the punch line is, why is that relevant to the military? Well, it's relevant in two ways. Firstly, it takes away the pressure on us to provide care to retirees and dependents. There is no political move in Australia for that to occur because in general, people are very happy with the health care that they can get outside of the military context. In fact, it does represent a little bit of a threat to me because the quality of care is so high that it's very easy for people to actually sling rocks in my direction and suggest that the quality of care we deliver in the military context to military people is of an inferior standard to that which they can get outside. I would debate that, but unfortunately, there is always that natural tendency to say, well, Doc, if you're any good, you wouldn't be in uniform. But we'll put that one aside. So that, I think, is an important thing for us. Now, as a consequence of that, within the Australian Defense Force, we provide health care for active-duty people only or Reservists who are on continuous full-time service. There are some minor exceptions when our people are deployed overseas with their families.

The other thing you need to understand is our military force is dramatically different; we are very, very small. My total active-duty uniformed military force is 52,000 people, of whom about 26,000 are in the Army, 13,000 in the Air Force, and about 12,000 in the Navy. It has been significantly reduced in size from the time that I joined some 25 years ago when the Air Force was sitting at some 22,500 thousand; we're now down to 13,000. So there really has been a culling of our numbers with an obvious focus on that operational side, if you like, the sharp end of the spear.

The other thing I think you need to understand is that obviously, we're an all-volunteer force, but our people do not serve for very long in uniform. The mean time across defense is only 12 years of military service for our people. In the Navy, it's six years. So gone are the days when people were career military, so we've got this very, very high churn in our warrior side of the house, but also in our medical side. Very, very few people will hit mandatory retiring age in my system. I think it's less than two percent of the force that reaches that mandatory retiring point.

Okay, from the health point of view, we are, again, in a somewhat schizophrenic state because we've been through several changes, and it's still very much a moving feast. There are four elements to my health care delivery—and I actually relish the fact that there are four—there's the active-duty military, the Reserve military, the Australian public servants, and contractors. Why is I relish that is because each of those four elements has unique characteristics. They have strengths and they do obviously have some weaknesses, but I put to you that they actually complement each other very well.

The active-duty guys clearly have the essential military skills that they need to progress their art when they deploy, but the downside is that they are a younger, inexperienced population. They are high churn, and they are not necessarily clinically—I'll use the word—"mature," and they're often still actively involved in their professional development training programs.

My Reservists tend to be a much older, many of them have ex-active-duty military time, and that is where I draw my clinical specialists from because in the active-duty force, I am basically providing primary health care and non-procedural specialists only. My procedural specialists, my surgeons, general surgeons, orthopedic surgeons, anesthesiologists, all come from my Reserve force.

What do our public servants bring?

Well, I won't be cynical. If I was in Canberra, I would be, but—No, what they, in fact, bring is tenure of appointment. And I have quite a few health care deliverers who are actually public servants. If you think about it, these guys don't move geographically, they stay in the one location, they do the one job, and they do it for a long period of time, and they know how the military system works, they

know how the civilian system works, they're great at interfacing, and in fact, they've become often the stable core that keeps my system together.

And the contractors that I bring in, again, provide geographic stability, predictability, and they're there 9-to-5 five days a week. They don't get deployed away on short notice, and I often—by the nature of setting the contract—get any experienced clinicians. In fact, many of these are the people who mentor my junior staff. If you're going to have people in training programs, they need supervisors, preceptors, mentors, and they can often come from that contracted force.

Okay, so I've already mentioned the fact that our size is contracting. One of the roles that I see as important for my people is fitness. Well, I would make the point to you that whilst the thing here is operational health support, I think it is very, very important that you don't lose sight of the fact that to be successful operationally, you've actually got to deploy a force that is fit. And yet in that, the work is done there in garrison. It is done before they actually leave your shores. And so what you've got to have are programs that are effective in such things as injury prevention, rehabilitation, occupational medicine, and mental health issues, which are a growth industry for me at present. And so that is the way that I can guarantee to the chief of the Defense Force that he does, in fact, have a force that is fit to fight.

Okay, the other thing I must point out is that whilst we aspire to a degree of jointery—and I think I mentioned earlier that I had, in fact, put forward the proposal that we go for a fourth arm of the Defense Force—the reality is that my warrior masters are not comfortable with that at all. There is total resistance to that proposal from Army, Navy, and Air Force, for a whole bunch of reasons. Some are purely tribal and are based on their ethos of all of one clan, others are perhaps a little more rational, and simply based on their personal experiences that where support services have been contracted out or brought under a common umbrella or common roof, that quite frankly, the standards of the services that are delivered have often dropped. We turn round and say that if we rationalize and civilianize that we can maintain standards. Unfortunately, there are many, many examples where in reality, that just does not happen. And so they have a natural cynicism about

releasing direct control of assets that they see that are really, really important to their mission.

Okay, this is one of the interesting things that happened to us in Australia. And, this is where I am going to be politically incorrect in order to tell you about a thing called the Defense Efficiency Review that took place in the early 1990s. The Review was driven to achieve financial and resource efficiencies by looking at trying to rebalance the tooth-to-tower ratio. It was all very, very trendy, and a lot of our commercialization programs flew directly from this.

I have to say, from my point of view as a health practitioner, it was really the pits. We have never dropped any lower than we did with that review because what it basically said was that we needed to rationalize our service delivery, that we needed to move many of our operationally focused health units more into the garrison environment to achieve financial efficiencies in peacetime health care, and what we saw, again, was different tribal responses.

Army turned around and basically said, “go to blazes, rude letter to follow, you’re not touching anything we own.” Navy initially said, yeah, you can all put it into a central location—this is still tri-service, by the way, still three single-service uniforms, but a degree of overarching control existed. Navy said maybe and then reneged. And Air Force, I have to say, with great embarrassment, said, you can have the lot, move it all, move it all. And we’ll put it under a thing called the Defense Personnel Executive, and we’ll have a director general of health services—which was my previous job—who will run that on our behalf.

And it really was a shambles because what it basically meant was that my health providers sitting out in the real world ended up working for multiple masters. They had their single-service chains of command—because they still had a wartime role and wartime mission that required that command—but then they had a whole bunch of administrative controls—I was owning the dollars, and I was owning the quality of care issues and the standards and things like that. And then, of course, the reality is that in any given facility, you’ll be sitting on a base with a base commander, and I’m not exaggerating to say that some of my people, as senior health guys, had six masters. Well, that is real tough; that’s real tough in anyone’s language, particularly in a resource-constrained environment.

It really doesn't work that well. We have attempted to rebalance that, but we are still, I have got to say, in a bit of a trough down there, and morale amongst my health leaders is not good.

The other thing that flowed from that was when they said, "okay, let's look at civilianization of some of our services." We actually looked at a whole state in Australia, okay? Now, the state of Victoria is one of our smallest ones, but I got to say it's twice the size of the UK. And, no, I'm not being disparaging about the UK; it serves a useful function: It keeps a lot of immigrants out of Australia. But getting back to the point at hand, they were quite prepared to hand off the whole of the whole of the military health care system in this state to a single turnkey contract for provision of all services. It looked really, really neat. None of us liked it, but we saluted it smartly, and we did it. We came so close to signing that bit of paper. And thank goodness the prime contractor decided to get out of one facet of the health market and they withdrew from contract negotiations.

But it wasn't long after that that the single services, in particular Army, realized that one of the roles to which they had not given much thought was advice to commanders. Health advice to commanders is pivotal if you are serious about maintaining the health and well-being of your forces. And if you think about the civilian paradigm of health care, it is very much one-on-one.



Think about the Privacy Act and all of the things that come with it. Civilian doctors are not comfortable going to a commander and talking about the health and well-being of an individual or about collective health and well-being. You know, it's just not something they're trained to do. Even my military people sometimes have difficulty adjusting to that "you are a company doctor first and a private doctor second."

So what we found was the commanders weren't getting the advice [they needed] about their people, and we had, unfortunately, some real disasters that led to a suicide that got enormous amounts of media attention. If you add it up, we've probably had at least three, if not four, suicides in the last two years that could be attributed to a failure of communication between the health care providers and the command system that is ultimately responsible for the well-being of those people. So it's been really ugly and very, very sad, but I can say that whilst we regret the deaths of those individuals immensely, a lot of us have put a lot of time and effort to make sure that it wasn't in vain, that we will get as much process improvement out of that as we possibly can.

Okay, this is the other thing I want to say about the Defense Efficiency Review: By standing up this health organization under this Defense Personnel Executive, I admit that I've inherited a whole bunch of health positions which were essentially sitting in the joint space. Now, I don't know how it works for you guys, but at the end of the day, joint positions take the bottom of the food chain in my organization. Chief of Army will fill every position he owns that's sitting in a single-service arena before he'll fill a joint position. That is just the reality of how it works. So I run a headquarters that is about 50-percent manned, okay?

I don't get the right bodies in the right positions, yet at the end of the day, I'm held accountable for the Chief of Army's health care and that of the Chief of Air Force, and Chief of Navy. I mean, when it doesn't work, I get a telephone call saying, "you know, we have a problem, don't we?"

So it is really, really difficult. I get empowered on the one hand, but don't get the resources to do the job. And as an aside, I was previously director-general of the Defense Health Service—singular—when I got promoted into this new position. I said, "guys, recognize the reality: I'm head of the Defense Health Services—plural. I ain't going to fight the white on this anymore." I sort of look after them on behalf of the service chief, but anyway—

If we actually look at operations—which, I guess, is what I was meant to be talking about—our primary mission is still the defense of Australia. It is still very much the conventional war, it's very much what General Lillywhite has been talking about, but my reality, of course, on a day-to-day-basis is totally different from that.

I mean, no one is strategically planning that we will ever have to defend continental Australia.

So the secondary mission is very much defense of Australia's national interests. And we have a government in place that has, perhaps, a much more global view, and we're getting a lot more involved now in coalition activities. And whilst they may start off in that conventional warfare space, I don't think anyone here would suggest that is what is actually taking place in Baghdad as we speak. So we have forces deployed to Baghdad, we have them in Afghanistan, and we're also actively involved in humanitarian—sorry, in peacekeeping and peacemaking operations.

So I'm suddenly having to take a force that was put together and structured on the basis of meeting that conventional threat and having to use it in a mission that's well outside its normal constraints.

Think about humanitarian assistance: By its nature, you're delivering care to an entirely different patient demographic: the elderly and the young. We don't deliver care to white, Anglo-Saxon Protestant males between the ages of 18 and 45, which really comprises 75 percent of my military force. So you need different skill sets, you need different logistic support, and different training. And that makes life real tough for me in terms of being able to make sure my people are current, competent, and proficient to meet the range of demands that are placed upon them. And I think that is a tension that will always exist.

How do I address it in the short term? Well, I address it predominantly through the use of my Reserves. I am absolutely and totally relying on a Reserve force. Now, I'm lucky that I come from Australia where volunteerism is really the backbone of the country. We have a silent workforce there of unpaid volunteers who service so much of our society's needs. It is the case in the States, but I don't think it's quite the same. I have Reserve specialists who make themselves available to me on single-digit hours' notice.

When we had the Bali bombing, when we had our people hurt up there, I had seven anesthesiologists who had run to me saying, "I'm available to move now" within the first hour of that story hitting the news bulletins. I had five of them in Darwin within six hours of the actual incident. They got there long before the air frames that were going to transport them into country. And every

time we have a military activity, these guys come out of the woodwork, and they just make themselves available. And these are high-quality clinicians. They are really competent guys. It is not the lame and the infirm. It's not those that can't get an honest job. These are professors, department heads, senior academics—you name it—who are current, competent, and proficient in military health care delivery, and they have never let me down.

I have units on 24 hours' notice to move. I man them on Reservists; I don't run a roster. I have one unit on four hours' notice to move; I don't even run a roster for that because I know I can get the guys when I need them. Whether it will always be so, I don't know. Could you handle a risk in your service? I don't think so. I'm not sure I'd want to walk to Congress and say, "that's how I'm going to man my capability. She'll be right on the day." But as I said, it works for me.

So I don't really want to take up more time other than to say that everything I do is compromised. I work in shades of gray. I have not seen a black or a white in the time I've been there.

It makes life tough. I'm under enormous pressure to rein in my expenditures. My health costs blew up some 15 percent last year against a national health inflator of about 7.5 percent. So I sort of have to carry my own bit of carpet everywhere I go because people are telling me how to do my job. And I've got to say that single-service tribalisms are very much alive and flourishing in my Defense Force, so we pay you lip service to the jointery, but I think we've still got a long way to go.

So ladies and gentlemen, thank you very much for your attention. I look forward to your questions. Thank you.

[Applause]

DR. PANNULLO: We now open the discussion to questions for about 15 minutes.

MAJOR GENERAL LILLYWHITE: In view of the comments by my Australian colleague, could I say, as a representative of the mother country, how nice it is to see one's children slowly maturing.

DR. BURKE: I have a question for each of you. How do you decide on the right mix of people in uniform, civilians, and contractors?

VICE MARSHAL AUSTIN: From my point of view, that's relatively straightforward because it depends on the mission of the facility.

Whilst we're a very small organization, we're geographically widely distributed. I don't need to tell this most-educated audience that Australia is actually the size of the continental U.S.A. minus Alaska. It's a very big country, I have 170 service delivery points for primary health care across that country, servicing, as I said, 52,000 people. So I was interested in the Canadian figures of where you said, what, some 70-odd?

So basically, if it's a front-line operational unit, it will be predominantly uniformed. I will need a small cadre of civilian health providers, basically so that when I deploy my operational assets, I leave something in place so the system can keep ticking. If I go to a headquarters where I don't have people who are likely to deploy, then the providers will be predominantly civilian. If I go to a training facility, up until 12 months ago, the answer is that the providers would have been all civilian; now, the Army, in fact, is putting back a lot of uniformed providers because they realize that criticality of those training facilities, and the fact that it's also dynamically, from a medical point of view, actually quite a challenging location because of that injury prevention issue that I mentioned to you. It's something that our civilian medical colleagues are not well trained in, and they need to have cred.

If you're going to go to a trainer and turn around and say, "I don't want you doing this—," well, sorry, we do not tell them what they can or cannot do. We go and tell them "our data shows this particular facet of your obstacle course or your training is injuring this population of people at this level. Is that an acceptable level of risk to you?" If the guy says "no way," because either—some of our facilities will have 20 percent of people off-line at any one time due to injury, then he'll ask, "how do I change that?" You need to be able to work with him and get the right specialists so that you can reduce your injury rates, monitor them, and move on.

We've reduced injury rates by 70 percent at some of our training facilities through our injury prevention program, which reflects an astronomical change to our operational capability.

COMMODORE KAVANAGH: That's actually a really tough question to answer because our structures are somewhat based on

historical structures, for instance what you used to have as a battalion in the Army. I'll use the Army model. The number of physicians and med techs and so on you need for an Army battalion, should be based on historical war data, and casualty figures, which the operators are supposed to give you but never do.

And then, of course, they're completely antiquated. We are predominantly involved in peace support missions where the level of risk is not the same as it is in other areas. So all that is to say it's a best guess. We know we have it wrong right now because when we deploy to any peace support mission, we end up having to take the health services personnel out of two or three units to support the one battle group that's deploying mainly because of the level of risk the country's willing to take, which is not very much. So if we send one infantry battalion, we end up having to take three infantry battalions' worth of doctors from it and med techs out of it in order to maintain 24/7 capability and almost zero risk.

But we don't need that back in Canada when we're training. And so we actually deploy a disproportionate number of health services personnel compared to the way they're stationed in Canada. So the long and the short of it is that it's not an exact science, it's actually quite difficult, and it's very complex. And I know we don't have it right at the moment. We have way too many general duty personnel in some of our organizations. I'll use nurses as an example. I believe we have way too many general duty nurses and not enough clinical care specialty team nurses for the types of roles we're performing today and perceive we will perform as we move into the future.

MAJOR GENERAL LILLYWHITE: In principle, quite simple: The operational scenario gives you the number of units. The number of units have a tape of establishment. You sum the tape of establishment to equal the military support available. If you need anything additional in order to provide your health care, then they must come from civilians. The complicating issue, of course, is understanding what you should have in your units, i.e. what should be on the tape of establishment? That is where it gets complex. And increasingly, the question arises of how you should reflect changes in practice. So, for example, in the United Kingdom, we're starting to use nurses more and more; the consequence of that is that the pay of doctors is going up, but there are less of them in the civilian sector. Should we actually reflect that in the military organization?

Because if we don't we're going to actually price ourselves out of the market. So the issue is not in theory how many you should have overall, but how the mix is made, I think.

DR. DAHLMAN: When you look at the American medical military establishment, what would you more than applaud and try to emulate, and what would you criticize?

MAJOR GENERAL LILLYWHITE: Interesting. I mean, I particularly like your utilization of physicians' assistants. I think that you're far better at some of your simulation and advanced training than we are. And those are the things, mainly, that I would emulate.

I'm not sure that I like the way you actually have your command structure down in your forward units, at division level and below. And I'm not sure that you have hitherto, although you have begun to, involved your clinicians in actual operational planning at the ground level. And those are my observations from a number of years of working with you.

You asked me the question, you got the answer.

COMMODORE KAVANAGH: Yeah, I probably can't give you as good an answer as my British colleague because I haven't as much experience on the ground as he does. Certainly from the aviation medicine and the air medevac that we talked about earlier today, we have a long way to go to get there as well; we're well behind the power curve, and we can't even convince our Air Force that it's important for them to take that role on from an airframe perspective. So that certainly is one area I think I really like.

One of the things I have been exposed to—typically when I was in San Antonio, and there were a lot of the discussions on futuring—is the use of technology in medicine. I have a concern about an over reliance on technology. I don't believe you can replace good training with technology. In the bottom line, sometimes technology will let you down when you most need it, and you still need to have good clinical skills in the art and science of medicine. You still have to function well, even for private med techs on the battlefield. And so having them completely linked to someone back behind them who tells them what to do I don't think is necessarily the right answer. I think you have to rely on training, and technology can't solve all of your problems.

VICE MARSHAL AUSTIN: Yeah, that's a tough question.

The things I can think of, I suppose, are probably a bit superficial. One of the problems I've got in Australia is that Army insists on having their regimental medical offices actually deliver services from within the lines of the [Regimental Aid Post]. For instance, on a large formation, I might have six combat units. All will have a regimental outpost with their doctor and their medics, all sitting under separate roofs. And so it results in duplication of resources. You know, these are sort of reasonably significant clinics, six in a row, and then I'll actually have a hospital a couple hundred yards up the road that no one actually uses for those combat units. And I think that's dumb.

I think health care providers are essentially herd animals. I think we flourish when we're actually together with colleagues because that gives us the options, or enhances the opportunities for collective training, to free people up for professional development work. They can still be under command of the unit. I'm not suggesting we should pool them but I think brigading resources like that is good, and that's what I certainly saw on the U.S. Air Force facilities with the squadron docs. They belong to a unit, but they actually deliver their service under an aerospace medicine squadron concept. I thought that was really, really neat.

The other thing is more a philosophical issue—and this is based on our experience in places like the 322, EM2 and [inaudible phrase]. Sometimes your propensity for allowing people to go down clinical specialization actually means that you've got so many super-specialists in there that everyone's scared to actually get in there collectively. And we found that, for instance, when we deployed, we had a team of 20 people sitting in there, and at one stage, I had an Australian actually in charge of the intensive care unit and an Australian in charge of the emergency medicine room because they, in effect, had broader generalist skills than the U.S. guys they were working with, and that was recognized by that group, and they suggested the Aussies take over control of that. Whilst we can be specialists, we pride ourselves on really maintaining those generalist skills, certainly within the military context.

MAJOR GENERAL LILLYWHITE: Could I just add one thing?

If you ask me what am I envious of, I would have said your research. And I have to say that your research program is brilliant,

and is actually giving to the world some significant advances in trauma care. And that I hope you'll never lose.

Can I make some observations? I mean, it's quite obvious from the speakers that there is a worldwide move by the military to economize on the provision of health care, and also of military health care. All our nations seem to be actually saying to themselves, "is this military health care a bit more expensive than it should be, and can we actually do it at cheaper cost?" And there's also a move to actually see whether or not it can be done cheaper by adopting the joint, the purple, the combined solution. And that seems to be a common feeling across the speakers today, and I've seen it in the rest of Europe as well.

And I think we're going to have to recognize that we're going to have to respond to that in an appropriate manner. I think that what we've got to actually ask ourselves, first of all, is if we're going to actually accept that we can no longer individually, as single services, provide the Army, Navy, and Air Force each with a comprehensive service of people. But somehow we have got to actually economize by coming together, we've got to start asking ourselves what the different models are for actually coming together.

There tends to be, I think, a lack of intellectual approach to the alternative models. For example, there's the purple way of coming together, whereby you actually mix the Navy and Army and Air Force up. There are other models, though, such as role specialization. And there are models for regionalization, et cetera. So I think there are different models that one might use to actually begin providing medical services more efficiently across the three services—or in your case, the four services—without necessarily having to go purple. This is because certainly my view is that whilst the Army, Navy, and Air Force—and Marines, in your case—remain the Army, Navy, Air Force, and Marines, trying to actually make their medical services purple will not work. But we've got to accept that all the services provided independently, element of care everywhere, may not be economically viable.

Questions or comments? I'm not sure you're allowed—

VICE MARSHAL AUSTIN: There you go, you're going to pick on the colonel.

COLONEL MANNERING: It's for you, sir. Can I just ask you your opinion, actually, on the fitness for [a military] role of, say, the anesthetists that phone you up and say, take me, take me, take me, take me, take me? Because generally speaking, during an operation, you'll find a lot of people knocking on the door saying, take me, sir, take me, sir.

How do you decide, really, that militarily, they are fit for role?

VICE MARSHAL AUSTIN: Okay, there's two answers to that. And in fact, I did sort of partially allude to it when I mentioned it.



If I could just jump sideways, when we had the tsunami in Indonesia, that received enormous attention in Australia. I was actually wearing a different hat at that stage; I was putting together the civilian response teams on a senior government committee to go in there. For political reasons, Australia as a nation didn't feel it appropriate to put uniformed people on the ground immediately. So we formed civilian teams, and we put a team into the Maldives, one into Sri Lanka, and five into Banda Aceh, or the Aceh province in Sumatra. And what I did there, by the way, was to actually insist that the team leaders all be Reservists, and that 50 percent of the civilian teams that went were, in fact, staffed by military Reservists who went as volunteers in a civilian capacity.

And the reason they went was because they had the skills needed to survive in an austere environment. I don't care how good you are as a trauma specialist or any other clinical specialist. If you cannot feed yourself, shelter yourself, and maintain your own health and well-being, then you cannot deliver quality health care; you

actually become a liability, not an asset. So, that was the reason we used the Reservists, and I just put in a plug for them because I think they enhance national capability in the health space. Think about what you've had with your hurricanes; I would suggest to you perhaps those health care providers in the civilian system who are most productive are probably ones with ex-military service.

Okay, what I'm leading up to is that we started a 1-800 number, which is, you know, a free number in Australia for volunteers to call in to volunteer health services. We were inundated. I think we had 14,000 people register their names. When we started filtering through them, what we found was the ones that called first were the ones we wouldn't touch with a barge pole. They were the ones who'd been deregistered; they were the ones with known drug problems, and they were the ones with active psychiatric illnesses. In fact, it really was dragging the very wrong people, and to the best of my knowledge, we did not deploy one single person who rang that number. We, in fact, used the people that were known to us individually or known through others that we trusted, and people went by invitation. So I guess, the main filter used was that we sent those people we knew could handle the mission.

The second thing is, in the military, we still require readiness issues, for instance that, you know, you've got to be current on your weapons, you've got to be physically fit, mentally fit, and dentally fit. So, again, in the military context, that's the first hurdle. If you're keen enough to pass all those hurdles, then you have to be known and have a proven track record. And, yeah, we deploy Reservists who we never invite back. We learn. We learn very, very quickly.

COLONEL MANNERING: Thank you.

DR. PANNULLO: Please join me in thanking the panelists.

[Applause]

[A recess was taken before the proceedings continued.]

MILITARY HEALTH SYSTEM: RECONSIDERING THE DUAL MISSION

REAR ADMIRAL JOHN M. MATECZUN

MAJOR GENERAL JOSEPH G. WEBB

COLONEL MARK A. HAMILTON

DR. PANNULLO: The next panel is called “Military Health System: Reconsidering the Dual Mission,” and by the dual mission, we mean the benefit mission, and the operational mission. We have heard about military health systems in a few foreign countries, now we’ll hear perspectives from the Surgeon General’s office in the United States.

The first speaker is Rear Admiral John Mateczun. He is the Deputy Surgeon General of the Navy and Vice Chief of the Bureau of Medicine and Surgery. Prior to his current role, he commanded the Naval Medical Center in San Diego. Under his leadership, the Medical Center deployed more than 1,000 personnel in support of Operations Iraqi Freedom, Enduring Freedom, and Unified Assistance. It also received, treated, and rehabilitated over 200 wounded soldiers, sailors, and Marines.

Rear Admiral Mateczun has served as the Joint Staff Surgeon and medical advisor to the Chairman of the Joint Chiefs of Staff, and he was the U.S. delegate to the NATO Committee of Chiefs of Medical Services. He has an academic appointment as associate professor of clinical psychiatry at the Uniformed Services University of Health Sciences. Rear Admiral Mateczun earned his Bachelor’s and Doctor of Medicine degrees at the University of New Mexico and completed his post-graduate training in psychiatry at the Naval Regional Medical Center in Oakland, California. He also holds a Master’s of public health from the University of California, Berkeley, and he completed the requirements for a law degree at Georgetown University Law Center.

The second speaker on the panel is Major General Joseph Webb. He is the Army’s deputy surgeon general and chief of staff for the U.S. Army Medical Command. Major General Webb served as senior dental corps staff officer at the Office of the Surgeon

General; as Commander of the U.S. Army Dental Command, Fort Sam Houston, Texas; and as deputy chief of staff and assistant surgeon general for Force Sustainment at Fort Sam Houston, Texas. He has also served as Commanding General of the Pacific Regional Medical Command and Chief of the Army Dental Corps. He is a graduate of the Army's Command and General Staff College and the United States Army War College. He completed his oral pathology residency at the United States Army Institute of Dental Research and Armed Forces Institute of Pathology in Washington, D.C.

Major General Webb received his Bachelor's of Science degree from Furman University in Greenville, South Carolina, his Doctor of Dental Medicine degree from the Medical University of South Carolina, and his Master's of Sciences in Special Studies degree from George Washington University in Washington, D.C.

The third speaker on the panel is Colonel Mark Hamilton from the Air Force. He is the Director of Staff for the Air Force Surgeon General.

In this capacity, he manages the daily operation of more than 400 medical staff. Colonel Hamilton has served at the Office of the Air Force Surgeon as the chief of the Environmental Operations Division and consultant to the surgeon for Bioenvironmental Engineering. He has also served with the Air Combat Command as the Chief of Aerospace Medicine Division and Chief of the Medical Modernization Division. He was the Director of International Activities and the acting Deputy for Force Protection within the Office of the Deputy Undersecretary of Defense for Environmental Security, where he provided oversight of the Air Force's environmental, safety and occupational health programs and of the execution of more than \$1.5 billion.

Colonel Hamilton holds a Bachelor's degree in Chemistry and a Master's degree in Industrial Hygiene from the University of Florida. He also has a Master's degree and a Ph.D. in Chemistry from the University of Rochester.

First we welcome Admiral Mateczun.

REAR ADMIRAL JOHN MATECZUN (Navy Deputy Surgeon General, U.S. Navy Bureau of Medicine and Surgery): Good afternoon, everyone. On behalf of Admiral Arthur, our Surgeon General, I'm pleased to be able to be here to address this conference. Admiral Arthur was in a motorcycle accident and was the

beneficiary of some of the great health services that Navy Medicine can offer as a trauma patient and now he's in rehabilitative care. I'm sure he wishes he could be here. Actually, this logo that you see up here was picked by Admiral Arthur. We quiz him on sort of the symbology of it. And, the anchor, the felled anchor, I think, is fairly traditional maritime symbology. And the red cross, we kind of understood.⁴



We wondered a little bit about the other colors, and he said that they were blue and green, representing all the health support services we provide to both the Navy and the Marine Corps. But there are critics that think that blue shade's a little too purple. Our mission and our priorities: No surprises here; this is what we do, and we derive our mission from our line counterparts, and our priorities, you will see, have nothing in them that looks like a dual mission.

I've been thinking about the concept of dual mission, and this is what we do. We provide a system of care. It is labeled up here as a spectrum of care, but it has two poles, if you will. On the one pole is our operational side, and on the other pole is the more peacetime or beneficiary side. In the spirit of, I guess, philosophical discourse, let me say that the thesis of a dual mission is sort of ontological reductionism, from our viewpoint. Let me provide an alternative thesis: that is, that we provide a health care system—that's the output that is our mission—and that there are different populations that that health care system serves. However, our stakeholders expect us to be able to provide service from the point of injury through rehabilitation, and at each of our handoffs within that system, there can be no mistakes. No mistakes in our system. So it's not like sending ordnance forward or retrograding any of our

4 Appendix D contains copies of the Microsoft PowerPoint slides that accompanied Admiral Mateczun's presentation.

supplies that have been in the theatre; each of our handoffs is critical, important, and it must work.

You know, it's not just a philosophical difference about looking at things as a dual mission. And when I talk about reductionism, I'm kind of serious because in some senses, what we're involved in is a discourse about whether we're involved in a linear system or a complex system. Now, those of you that know something about systems theory know that in linear systems, the system is the sum of its parts and no more. But in a complex system, and I would submit that anything that involves people to any degree is a fairly complex system, we know that there are nonlinear effects when you try to change the system. I think that the UK presentation was a particularly good illustration of that. When you change a nonlinear system, you get disproportionate changes, and they're not always predictable, so you have to be very careful.

I think that in our own experience, just in the Navy medical system, we've had some [disproportionate changes] too. We changed the way that we provided services in our hospitals. It was sort of an au courant methodology that said we should provide service lines, rather than having wards. So we took apart some of our systems and we found that when we moved away from and disrupted the traditional systems, where we had care provided on wards and we had physician teams and we had nursing teams, we also disrupted a lot of systems that also had to do with quality, and redundancy of checks and safety checks within the system. So I don't think it's a small point for us to take a look at this.

When I talk to our line counterparts, it is my belief that they view medical care as a process rather than as a system, and here's the difference: I think that an example of a process is going to a doctor. I think that health care requires a system of care. And it's difficult because they don't see the background work that goes into making the system work.

I want to go back to this slide for a second. I would say that there's another piece about this slide. The demands of our stakeholders differ [depending] on which pole of the slide you're on. On the far left-hand side, at the point of the spear, the demand is for effectiveness. Efficiency doesn't matter as much on that far side. On the far right-hand side, benefit delivery efficiency is the demand of

our stakeholders. So depending on which side you're on, yes, there are different demands.

This is a little bit about Navy Medicine. The way we structured it, and the way we continue to restructure it in the future, will be influenced by how far joint medicine goes in the future. I think that there are a couple of lessons that we've learned. We are now in the process of standing up four flag-level intermediate commands. Our Chief of Naval Operations, Admiral Clark, was very business-oriented, and one of the things that I think that he pounded into us after five years was that if you want to gain efficiencies, then you must align authority and accountability within the system. If you don't, you are not going to gain efficiencies, and you are probably not going to be very effective.

So we're in the process of doing that, and we've sorted out what we do in Navy Medicine into three, if you will, health care delivery organizations: Navy Medicine East, West, and National Capital Area, as well as a support command for those things that cross over all of the services, like IM, IT, acquisition, and contracting services, 25 hospitals, 135 clinics. And we do some other things as well.

This is sort of where we are in the continental United States; it's how we're split up. You can see we fall out, sort of naturally, into east and west. There's not much in the way of oceans in the middle of the country, and we don't have a Great Lakes Navy because of good relations with one of our other colonial brethren.

The way that we're starting to envision this also has to do with the way we execute our mission. We have three medical centers in there: The medical centers in Washington at Bethesda, and in Virginia at Portsmouth, and in California at San Diego.

These are very large medical centers; they're actually mega-medical centers. I think that San Diego's probably the prototype for the mega-medical centers that you're going to see developing in San Antonio and in the capital area as we combine centers down there. San Diego is actually the largest of the medical centers today. It is a force projection platform. That is what we do. We provide health services there, and we [pull] people out of there on deployment.

That's the way we've structured the delivery system to perform the dual mission. It's not as easy to do that at places like Lemoore, or out of Pensacola or Jacksonville; they just don't have the resources there. They don't have the number of people. They don't

have the abilities to contract for backfill or do whatever it is that we need to do to continue to be able to provide services.

This is our overseas facilities. They're also split up into east and west. The Atlantic, to the side, belongs to Navy Medicine East, and the Pacific side to Navy Medicine West. But there's a point here, and as we talk about reachback, as we did this morning, that we must ask how far you can reach back, how far can an airplane fly with critical care patients aboard?

The point is that you have to have en route infrastructure to be able to support reachback. You have to have someplace for the airplanes to stop. During Iraqi Freedom original, that place was in Rota, Spain, where we also had a fleet hospital set up that took care of those patients coming back from the area of responsibility, [which is] the function Landstuhl performs today in Germany. If the weather's not good at Germany, there's not much reach-back. If Landstuhl gets full, there's not much reach-back. So a constant flow is required in order to reduce that logistics infrastructure in theatre.

We have a lot of operational platforms that we use in Navy medicine. You notice those first two up there. If you look at ships, aircrafts, submarines, and Marine Corps, we operate in all operational environments, and we'd like to think that we're the only service to do that. I'm pretty sure we're still the only one that does undersea, but we'll wait and see what General Webb and Colonel Hamilton have to say about that.

We heard today about transformation, the transformation into forward surgical teams and into this reachback that's going on. Both of those efforts that happened, I will submit to you, were not external transformations, but were internal transformations based on needs that were identified by practitioners that were forward in the field, doing their job. And what they saw in Operation Desert Storm was there must be a better way to do this. We had to go forward with modularized operating rooms with current technology to increase the survival rate that we have. It took a few years to organize that way, but that was not an externally driven transformation.

And I would say that the same thing happened with the second piece of what was required, which was the critical care transport that the Air Force did such a great job on. Before, we used to transport only stable patients, so they had to stay on the ground for quite a

while. But we began moving other patients with the new technology. Once again, it was not an externally driven transformation; it was driven by experts from inside who recognized the potential for new technologies, put it together in a way that was operationally relevant, and implemented it. Some of the other things that we do—expeditionary medical facilities, hospital ships, preventive medicine units—span these levels of care that you've got.

This picture is an aircraft carrier. When it travels out, we would have one of our fleet surgical teams on it. These large deck amphibious units that you see down there in the lower right-hand corner have been doing humanitarian assistance, disaster relief missions; that is what was just down in the Gulf of Mexico.

How do you determine your requirements? You have to have some vision. You have to have some structure of what it is that your nation needs. And this was sort of the Navy's look ahead to doing that under Admiral Clark, and this was the 3+1 initiative. We said, "what is it that we're doing? What is it that we're going to be doing and thinking in the foreseeable future, and how shall we structure that?" Well, one was the major combat operations, which you have to size to be able to do. We said, "well, stability operations, the global war on terrorism, and homeland security provide another mix of mission that we're going to have—homeland security, homeland defense." And you might add in there humanitarian systems and disaster relief.

So in some way, that's going to come together through what we know as the QDR to provide us with a requirements mix that we'll have to match up to. What do we need to do to be able to do that? We have to really get [smaller modules] and be able to do more rapid response. We have to be able to sustain once we've surged forward and our equipment's more sophisticated, and we will have a lot more training requirements as we do this.

Here's how we put it together in the Navy to meet those requirements. Some of my more waggish compatriots call this the beer keg slide. The top of the beer keg there is sort of where our continual operations are. All of those people that are organic to the Fleet and to the Marine Force are out there today in those billets that are forward. And then take a look at the surge force that we've got underneath there. That's what we send forward if we need to, in both those expansion and theatre tasks. Those are our deployers, if

you will, that come out of our hospitals and go forward. Then we have to have some sustainment piece that really tries to provide a rotation base and train what we need to be able to do that.

Our philosophy, again, is that if you're not in one of those categories, then you don't need to be in uniform. And we can have non-uniformed people providing those services. But it all depends on how you define that requirement. The requirement is, once again, defined externally, too, and we're responsible for sizing to the requirement.

This slide shows our human capital strategy, and Admiral Clark, as oriented as he was to where we were going, said, you know, really, it's people that are the biggest cost that we have within the Navy. And so he challenged us to take a look at where every person was, and he said, I want every sailor that we need to win the war on terrorism, and I don't want a sailor more than that. So we've taken that on, and we have developed strategies that we have for each of those that are out there, each of the different components of the Navy, in order to be able to put that together.

How do we deploy, how do we get more scale or more modular? I was on the Joint Staff during Iraqi Freedom, and we sort of changed the way of doing business. People used to request units; now, we've switched over to requesting capabilities and what we call force modules. Everything is a boutique operation today. Nothing is sort of cookie-cutter or cut out. That is, every combatant commander out there has a planner, and they put in for what they want. And in the terms of force modules, we have to be able to provide that. It's not good enough to have a 500-bed fleet hospital if that's not responsive to what the combatant commander needs.

So these are building blocks that we've put together, and we're in the process of transforming our deployable capabilities to meet these building blocks. And then you could put them together for whatever your purpose is: casualty care, humanitarian assistance, homeland defense, or anything else.

Now, you know, pediatrics is an interesting one. There's this kind of pediatrics surgeon polarity where surgeons are the ones that are forward, and the pediatricians are the ones that are back, but it depends on how you define the mission. In developing parts of the world, over two-thirds of the base population is children. Most of them are under six. If we're doing operations there, then we ought to

have competent expertise to be able to do that. If we're fulfilling our Geneva Convention requirements to take care of displaced people that we have displaced, then that's certainly a requirement as well.

So it's hard to say, in a large system, that any of the components is more necessary at any given point. Furthermore, a theatre evolves. The requirements for initial operations in a theatre are not the same as the requirements for sustainment in a theatre. So you have to be able to adapt to the theatre as the theater matures and evolves as well.

This is all a part of what we call agility; part of what we're trying to do in Navy medicine is to become agile. And this modularity is intended to allow us to do that. Mission flexibility, interchangeability, easier resupply, and logistics shaping for minimal footprint are all ideas for getting the footprint we need in theatre and not much more. That's what we would like to do.

This requires that we train a little bit different—and let me get to my last slide here. How are we transforming? We have to train and deploy differently. I just talked a little bit about the way we deploy. You know, training for those four operational environments is different, and what we found is that we have to have some level of baseline training that we provide to everybody to get ready to deploy, but then we have to have just-in-time training as we get an individual ready to deploy to a specific platform in a specific place. Over a third of our Navy medical people have become what we call sand Sailors, that is, that they have been boots on the ground with the Marines in Iraq and Afghanistan. That requires a little bit different training than is required for going out on a casualty receiving and treatment ship to do humanitarian operations after Katrina.

Those platforms and those people expect that we will train them to be able to survive in the environment that they're in. And so we have to adapt our training. The clinical training is not what's critical here. Rather, it's the adaptability to the environment, the operational environment, that they're going to be in. Part of the challenge that we have is training them and then providing that last piece of the training as we define the platform that they will go to.

One of the other ways that we've had to adapt in deployment is that we used to take everybody in a specific billet and say, "if you're in this billet, then you're going to go to a Bahrain platform. You're

going to go to Fourth Battalion Third Marines. There you go.” Well, what we found out was that the body in the billet kept deploying repetitively while perhaps one [billet] for the hospital ship didn’t, so we had to reshuffle the deck. What we had to reach out to was a system of universal sourcing. We’re kind of going to a system in which we reach out across Navy medicine and say, “well, if you’re an orthopedic surgeon, we don’t know exactly where you’re going to go, so we have to provide you with this baseline training, and then we’ll get you up to speed on whichever operational environment you’re going to go into.” That’s because deployment equity is critical to our maintenance of the force structure. If our people do not believe that we are equitable in the deployments that we assign them and in the risk of those deployments, they will leave. It is one of our covenant leadership responsibilities with our people to make sure that we provide that deployment equity. That’s why we’ve had to move to universal sourcing; it’s created difficulties for us in the training environment and in forming these training requirements that we have.

Medical force sized to the readiness requirements: Homeland defense and humanitarian missions have to be considered in those operational analyses that we’re doing. Overseas facilities present unique challenges. A lot of our personnel deploy with their families overseas. Those families expect a certain level of support and a certain level of quality, and it’s up to us to make sure that we’ve met that leadership responsibility as well.

We can do these things. We can maintain the right skills and specialty mix. However, there are certain low-density, high-demand assets that are out there. We, too, have moved to a more generalist mix, particularly with our enlisted population. We have technicians that were urology technicians and ear, nose, throat technicians and ophthalmology technicians, and we rolled them back into the general role of operating room technicians. If they can go into an operating room, they have to be able to maintain that skill to deploy—if you find yourself in such a subspecialty niche that you can’t deploy, then we probably don’t need you in uniform. That is the way that we’re looking at it today.

Dual-use, dual-mission, dual-value is the way that we frame. We do believe that it provides economic benefit in most cases. And if you take a look at the synergies available in that system health care that I described, we should make maximum use of that system

if we have to build it anyway. If we try to split it into component parts, once again, we may get disproportionate results that we can't completely predict, but we obviate the ability to gain benefit from an existing infrastructure that we have to have anyway.

That's it, for my presentation. Are we going to wait until the panel for questions?

[Applause]

DR. PANNULLO: Next is General Webb.

MAJOR GENERAL JOSEPH WEBB (Deputy Surgeon General, Office of the Army Surgeon General): Well, good afternoon, everybody.⁵

During our former panel, when Margaret Kavanagh was introduced, she was thankful for the opportunity to address this auspicious group. Due to my selective hearing, I heard "this suspicious group," so either way, there's probably a good blend in here. I suspect between what you've heard and what you'll hear from the Air Force and Army, you'll see a lot of similarities in the thought processes, but you'll also see some differences.

I just want to go over a few things with you on behalf of Lieutenant General Kevin Kiley. I want to talk about the organization and mission transformation and a little bit about the future. When you look at how the Army Medical Department is organized, we have at the top one individual, The Surgeon General, who is dual-hatted as the Army Medical Command Commander, and he also does have a staff hat under which he works for the Chief of Staff of the Army. He also has a command hat, which controls the medical assets that are assigned to the Medical Command. And that organization is shown there. We do have veterinary, dental,



⁵ Appendix E contains copies of the Microsoft PowerPoint slides that accompanied Major General Webb's presentation.

research, training, and regional medical commands where the vast majority of our health care is provided.

Now, in addition to that, there are medical assets in other Army units that are not under the direct control of the Army Surgeon General, but the interesting thing is that the people rotate in and out of those units so there's always some loyalty to the Surgeon General.

When we talk about our missions, we have to project and sustain a healthy, medically protected force. That means when our soldiers go out, they're as protected as we can anticipate that they need to be, depending on the particular scenario and theatre that they may be in. We also have to train, equip, and deploy the medical force, i.e. the medics that go forward, either on an organic basis or a regional basis, to support the soldiers that are in theatre. And then, of course, we have to care for our beneficiaries, which is primarily an MTF [medical treatment facility] responsibility.

Now, we look at a number of different foci. We are a nation at war; that is our primary focus right now and our primary mission. But at the same time, we have our peacetime care mission, partially done through our MTFs and partially done through managed care support contractors. And at the same time, the Army is transforming. The Army determines, in large part, what that TO&E force structure's going to look like and how large it is.

The Army's going to a more modular force instead of large divisions, which may mean you call forward more than you actually need to in a particular situation. We're going to smaller brigade combat team units, and we can employ multiples of those.

When you go to a modular design like that, and you want all of necessary capabilities in a particular package, it takes additional resources in the big picture. So as the Army has grown in its brigade-size units, the medical force structure to support those has increased also, primarily in the medic piece, our 91 Whiskey. Just an example of where we are today in global engagements: We have nearly 12,000 people deployed around the world.

The bait here was to talk about the dual mission, and I think John did a very good job of showing that it's not a dual mission—it's more than two missions—and it's not separate missions, they're all intertwined. When you look at the way we're organized now for the medical assets within the Army, we do have those medical assets

that are combat-oriented, and we do have medical assets and functions that are in our sustaining base. But when you really look at what it takes to do the mission or to do any predictable mission, or even sometimes unplanned missions, you need that intertwining of the capabilities that you find in both places.

If you look at the slide on the thumb, you'll see the word "PROFIS," and I want to tell you just a little bit about that. If you looked at all the forces that the Army says they need to do their job and you look at all of the assets, resources, and personnel that are needed to do the peacetime job, we need to double the size of the military force. So obviously, that's unaffordable. How do we accomplish these missions without increasing the size of the military? Very similar to what the Navy mentioned doing, we do assign individuals to particular billets. Let's say we assign them to a hospital but their readiness mission is to a particular unit. So if that unit is activated or called forward, that individual or those individuals will be pulled out of the peacetime care, and plugged into the MTOE [modified table of organization and equipment] side and go forward. And, then we'd struggle with how to accomplish that peacetime mission where the vacancies or vacancy may be, either by way of contracting or organizing or temporary duty (TDY) travel or activating Reservists. So the PROFIS system helps satisfy both of those missions. In addition, as you know, a large portion of our medical structure is in the Reserve component. They also have an inadequate number of bodies to do their missions, so in some cases, we've actually reversed PROFIS; we have active people assigned potentially against a readiness billet should a Reserve unit be called up.

So sometimes you have triple hats here. If you look at what we've been doing, the Army has a fixed process for periodic review of the total Army. This slide shows the wartime structure and what's happened to the medical department—the hospital structure—since 1991.

If you look at that, that's a 79-percent reduction. We're currently in the process of our total Army analysis 08-13. Preliminary data says we'll go even smaller. So this is partially changed as a result of mission changes, of end-strength of the Army. But I think it does show that we're not just set with our 1991 or 1992 structure, that we have been actively looking at what's required for the mission and what is allowed by the Army. The same

things happen on our hospital structure when you look from 1988 to 2002. And as you know, when Base Realignment and Closure (BRAC) happens, and when the integrated Global Presence and Basing Strategy (IGPBS) or the rebasing of some of our hospitals happens, those numbers will go even lower.

You heard a little bit about BRAC this morning. The impacts on the Army Medical Department are significant, but there are great opportunities out there.

If you look at the national capital area and San Antonio, there have been reductions in overall structures, both in terms of facilities and personnel. And, there is an integration, the details of which are yet to be determined, within the service that will give us much, much more of a joint look. We're doing the same thing by creating centers of excellence in research and in training. And in addition, we looked at those installations and their workload and their patient population and decided in some cases, we could completely close a facility, inpatient and outpatient; in some cases, we could close the inpatient care and retain the outpatient care. So we looked at what we could do to economize and still get the mission accomplished.

A few years ago, the Army decided that it needed to civilianize some of its military spaces. The target at that time was 15,000. I think we're going to see a second iteration of Mil-Civ [i.e., military-civilian conversions] coming, and the rough order of magnitude that I'm hearing now is somewhere around 16,000 or so for that.

Now, when you look at the Secretary's plan for end strength for right now, it is to keep it slightly elevated, but by about the year FY13 or so, we'll be back down to our original level of 482,400, and that's going to require some elimination of structure. When you couple that with the increase on the combat side of the house and on the special forces side of the house, you can see that the pool to reduce from becomes smaller and smaller, and the Army Medical Department is a significant piece of that pool. So I think we'll be a target for Mil-Civ, for reduction in the student account, and reduction in the institutional Army.

You heard a little bit about the talk about a joint medical command, but in reality, it would be a unified medical command with all of the services involved. There was direction given that we should have an implementation plan for a joint medical command. The work towards that plan has been—sporadic, I suppose, is a good

word. The services, in general, I think, agree that this is probably a good thing if done properly. And being done properly is the key piece here because even though the services have a lot of commonality—and there is a potential for significant savings if done right—all of that savings is not going to be on the military side. In our vision, some of that savings will be on the DoD side, the civilian and the contract side. I suspect it's going to come down to who's in charge of what, and how much, and who gets the power, and those kinds of issues that it always comes down to. I don't envision this as a purple-suited uniform in any case, but more of a good step toward joint utilization and design of the specific forces.

So what are we looking at in the future? Well, the trend to reduce military is going to continue to increase. It's always been there. The unique thing about it this time is that that emphasis is happening during a time of war, which has not been what you'd seen historically. Normally, when you were in a war, there were easings of the, say, end-cap, and you have some of that now, but you still have those pressures to reduce the size of the military.

Whatever we do, there is a total need for providing health care. Now, the military can provide some piece of that, and managed care support contractors can provide some piece of that as well, and the VA can also provide some piece of that. There are lots of ways to deliver the total needed benefit for the population.

And I think our struggle is just to decide what the right proportion is, and how it's delivered and who delivers it. I think unless we continue to rely on things like PROFIS and redesign of our business processes and so forth, we're going to be pushed into a corner to make decisions more quickly than is appropriate. So as we go forward, I guess, my recommendation would be to go forward cautiously. And we'll see what the unified medical command has to bring.

Thank you very much.

[Applause]

DR. PANNULLO: Next is Colonel Hamilton.

COLONEL MARK HAMILTON (Executive Assistant to the Surgeon General of the Air Force): All right, thank you.⁶

Couple of observations. One is, it's always good to go last because you can just say, "whatever they said." So just remember all that. The other part is that coming out here Normally, I do the messages for General Taylor and a number of the senior leadership in the medical service. I work with them on it, and we do the slides, we put it all together, and then he goes out and gives all the briefings, and I sit in the back and relax. It's rare for me to come up here and actually have to give the messages, so it's sort of an on-the-job training kind of event for me. Thank you.

What I'd like to do is spend a couple of minutes—I don't think I'll take too much of your time—to go over a little bit about where we are in the Air Force Medical Service and have a little discussion about the medical mission. And why I thought about bringing that forward was to talk about what it was like when I came into the service back in the 1970s, when we had the Cold War going on, a large Air Force presence, and a huge Air Force medical service, and every single Air Force base had a hospital with an inpatient ward, in some cases, less than ten beds with an average daily patient load of maybe one. And that was worldwide. And at that time, we had thousands of beds available in our system, and we were scattered across the world.

And then the major seismic event happened. I happened to be in Germany when the Wall came down, and I was at Wiesbaden, which as you guys—the Germans in the group—know, was a large thousand-bed hospital. And then we closed it in two years. We took it from 1,000 beds to a contingency hospital, and then it was gone



⁶ The Microsoft PowerPoint slides that accompanied Colonel Hamilton's presentation were not available for reproduction here.

forever. And Lindsay Air Station went, and over that time, a transformation began in the Air Force which is going on today. That BRAC is a major piece of that. I don't think it's any slight to say that this BRAC—even though I know Army and Navy had their part of it—was a largely an Air Force BRAC, because we took care of a lot of Air Force infrastructure in this BRAC, and we added a lot of infrastructure to the other services to account for it. That's changing quite a bit about the way General Taylor and the rest of the Air Force Medical Services began to view the way we execute our mission.

Another aspect that I want to talk about a little bit, as we get into the slides, is the revolution in health care. For us, that relates to Air Evac. As was mentioned before with the contracted civilian acquired training (C-CAT) teams—our critical care, our transport teams—that whole process has matured to a point now where what we're doing in our airplanes was undreamed of back when I came into the service in the 1970s. It was really undreamed of when I was at Wiesbaden and we were bringing back the first casualties to Europe and trying to sort out which hospital they would go to. The Air Force guys go here, the Navy guys go there, and the Army guys go here. And so we were working through that back in those days. So without a further introduction, I just want to move on.

To talk about our mission, this is what we do. And in the Air Force, that has a great deal of meaning because we have airplanes. That's how we do business, and our airplanes go everywhere all the time, and we normally have airplanes in nearly every country of the world nearly every day. And that results in our people being exposed to certain risks, both chemical and biological as well as just cultural types of risk that we end up having to deal with oftentimes we come back.

The different parts and pieces of providing that actual mission are listed here. This is how we break out, if you will, the work breakdown structure for the Air Force Medical Service. And I'm not going to go into each one of these things individually because it's already been done in great detail, and much better than I could do, by my co-panelists.

The capabilities—and really, what we see is the pillars of the Air Force Medical Service.

The basic mission is to provide a fit and healthy force, and to do that, we have to address these four different aspects of preventing casualties: Preventive medicine; restoring health, which is battlefield medicine, if you will; recuperative medicine, which is enhancing the performance of our people and which I'll talk about in a little bit more depth in a second; and a fit and healthy force, which has become an issue for the Air Force. 24/7 operations in austere locations with minimal, bare base facilities means that our people have to be at a different fitness level than they did when they were in the Cold War, where we basically were on fixed facilities with nice—and overtime, we generated quite a nice little platform for us—Wiesbaden was very nice.

And lately, you know, it's been a little different. So we have actually come through with a completely new fitness program for the Air Force that I'm sure many of you are aware of, changing completely from what we did before, at the request of the Chief but driven by the medical service. So we've become much more focused on how to manage the overall fitness of our force and what that means medically. An enhanced performance aspect of it is that we take our B-2s off from Weidman (phonetic) and we fly them all the way to the desert, and by the time the pilots get there to drop the bombs, they're ready to go to sleep, so we have a work-rest cycle problem, and we have to deal with that. We have lasers everywhere, and in our business, that thing that hangs off the end of the airplane that looks for lasers is almost as sensitive, if not more sensitive, than this [pointer] thing is, so all they got to do is confuse that thing, and then the missile comes back, and it's a failed mission, and we have to go back and think that through because it costs us a lot of money to put that airplane there with that weapon and a mission to accomplish. And so the Air Force Medical Service is interested in how we do all those things because that thing on the end of the weapon is beginning to look, like I said, more and more like what's in your head. And so there are some similarities there.

Since General Carlton put this slide up—this is how we have envisioned our mission of having a wartime mission, a benefit mission, and an overlapping peace mission in the middle. And I'm sure this is a familiar slide to everybody. One of the things that has changed with the latest readiness missions is that the home station piece is not nearly as separated as it used to be because the Air Force now is fighting the war. Our foxholes are in Knob Noster,

Missouri, and they're at Luke Air Force Base; they're in Langley Air Force Base because our heavy lifters and our big bombers, especially, come out of there, go do their mission and come home. And there has been a story in the paper that I saw the other day about a B-52 pilot, who loves it because he usually kisses his wife good morning at the door, then goes and flies his mission, and is back for supper. And he's dropped bombs and done all that kind of stuff. Well, there's all kinds of air stress and issues that come with that, not just for that flyer, but for the family, and he's doing it here in the States. So that's led us to a complete rethinking of how we look at this particular mission and the benefit mission in particular.

Because we've largely gotten out of the hospital business across the Air Force, today in the Air Force, we have something like 700 beds total. When Wilford Hall in San Antonio was built, it held over 1,000 beds. So we've really reduced that structure, and when BRAC goes through, our bedded space structure in the Air Force is going to go way down. This change is really in light of the fact there's been a revolution in health care where people don't spend time in the hospitals in the inpatient wards, which is no surprise, and the fact that we had so many little ones to begin with that we had to get rid of over time. We're nearly at the end of that reduction in our bedded spaces, and now, as we look forward into the future of implementing what we did in BRAC as well as what's going on in QDR and Unified Medical Command, what we're looking for is a new paradigm for providing military medicine in terms of a stronger partnership with the civilian community. We have a lot of our facilities in very robust U.S. markets that have large hospital facilities and potential specialty-care facilities. The question is how we can leverage those facilities to ensure that we get the benefit management done in the home station health care piece, but still provide the operational health care that we need for our fighting forces, which our line counterparts actually demand and are willing to let us know about it on a routine basis.

The issue here today is that, as you may know, we do already partner with some civilian facilities to help provide some ready medics to send people into trauma care in order to get that experience. And we do rotate them through the different places such as Shock Trauma in Baltimore so that they can get that experience, get that care and keep their skills up. And we're going to expand

that, as I see going forward, in the Air Force into an even broader base, especially, as I said, with what we do in the BRAC process.

I'll talk a little bit about the operational health care and what's it like to be a warfighter medic. In the Air Force, we had the same problem as everyone else with [a few] guys having to do all the deployments all the time, and their families just hating it. And what happened was that the Air Force Chief came up with a different way of doing business where we basically sequestered the Air Force into five big chunks and then rotated those on call to go deploy by chunk. They're called AEFs; AEF Medical Support means Air Expeditionary Forces. So what happens when you come in is you get a number. For instance, you might be in AEF-6 and you know, because you can look on the calendar, that you're eligible for deployment during these months of the year. It's about a 15-to 18-month cycle. And so you know right up front when you're going to go, so you can arrange your marriages, your vacations, your training, and whatever else is in your life, around that schedule. The idea was for the airman to have stability in his life for him and his family and still be a deployable asset for the Air Force. We're into cycle six of this system now. We've cycled through it six times now, and we're getting to be pretty good at it.

In terms of the medical service of the Air Force, we went forward and asked the Chief not too long ago, "how much medicine do you want in an AEF?" and he gave us an answer. And on the basis of that answer, we have restructured and rethought the entire manpower system of the Air Force Medical Service. We're now going through the analysis and the readiness review with a number in mind for how many medics we need in Air Force medicine. It's going to be smaller, without doubt, in terms of the uniformed service. And there's going to be a shift in the specialty mixes as well.

So going forward, this is a foundational issue for the Air Force Medical Service which is now a substantial driver of our entire manpower and posturing system. It will also drive our training system, as you can imagine, because we know when we're going to go, so we know when you have to train. So all of this stuff is starting to lash together for us in the Air Force to turn into a comprehensive program that drives how we do business.

I wanted to talk a little bit in this case about Air Evac, which is not on the slide, because I talk about it every time we bring it up. And what astounds me in Air Evac is the way we have changed delivery of care in the front end.

We had a case, which I'm aware of, when the Marines deployed initially into the capital in Afghanistan. We sent in an airlift team that was essentially receiving casualties from the first line medics and putting them on airplanes and shipping them out. And so there was no real intermediate care. It was the first experience we had with seriously injured people going directly from the pain of casualty production to an airlift system that got them someplace not too far away, usually in the Gulf, where we could get them definitive care in a relaxed, if you will, environment. And now we're beginning to look at that as a new way to do business, and we're expanding the capabilities of those back ends in our airplanes.

It's no secret, though, we've lost all the C-9s, and now we're looking at using gray hull airplanes, Air Force airplanes, to move these casualties back and forth. And General Kelley will correct me because he has his finger on this pulse, but so far as I can tell now we haven't had a problem moving casualties. When General Taylor was over in the theatre, he told me that what he saw in the hospitals was not a lot of military Air Force or you know, U.S. Military, it was mostly civilians because we can't Air Evac them. The military guys were getting out of there, and the civilians were the ones we were treating at those locations.

So there's a change going on in our hospitals that we see in this business; it's going to lead to a change in what we put up front. When we first deployed folks to the desert, we had surgeons and high-tech specialists out there who weren't seeing enough patients. So we had to bring them back. So, in our business, in the Air Force, we're not seeing the high levels of casualty flow and trauma that you would expect from maybe the Army or the Marine Corps, where they actually go in places where people shoot bullets at them. They're going to have a country club guarantee.

The benefit mission: This slide tells a little bit about the size of the benefit mission, i.e. the health care home station mission. This is the part of the pie that we expect to provide us with a ready medical force, and [that we expect to provide that medical force with] the clinical experience and practice necessary to maintain its skills.

More and more, we're asking the civilian community to perform that role as we draw down our embedded facilities and lose much of our GME programs and that particular type of capability.

Last slide: For the Air Force Medical Service, supporting the operational mission is, like for anyone else, the number one mission that we have. The operational mission is a little bit different than it was when I came in during the 1970s, when my perception is that we were really focused a lot on providing that health care benefit to the non-uniformed beneficiaries because there was no TRICARE and nowhere else to go, so you had to come into our facilities and see us about all this stuff. TRICARE's implementation in the 1990s has changed that dynamic, and we're adapting to it.

Regarding the manpower above the military essential baseline, we're now in the middle of trying to figure out what the optimal make versus buy ratio is. It's going to be interesting how that turns out because there have already been some surprises cases where we've had specialties that were projected to lose over 400 military personnel, and the leaders of those specialties have come in and said, "we won't want to make them, and we don't want to buy them, we want to get them out of here because we don't need them." And so there's some of that going on. Then, there's also the repositioning that we typically do during a process like this, in order to better focus in on it.

Secretary Rumsfeld said something that stuck with me a couple of years ago. I'm not going to say if I believe it's accurate, but it certainly means a lot to me. He said that the DoD has enough bodies; they're just in the wrong places. And as I saw this whole thing unfold in terms our looking at manpower in the Air Force, I felt like maybe there was some of that too that went on.

We have a lot of bodies in the Air Force, but not necessarily all in the right places. I think we know now, from the process that we just went through, of how many we need and generally where they need to go. Now, the trick is—execution being the chariot of genius—the trick is, is to go out and get that to happen.

And with that, I'm done, and I think we're ready to answer any questions.

[Applause]

DR. PANNULLO: We now open the discussion for questions.

VICE ADMIRAL OCKER: First, I'll ask you to forgive me for this question, but it's just—

COLONEL HAMILTON: Done.

VICE ADMIRAL OCKER: It's—oh, thank you. It's just too intriguing for me.

Taking a timeframe of ten years, how much or how many of your facilities, capabilities, and assets could you envision in a joint environment?

REAR ADMIRAL MATECZUN: I'll take a shot at it.

All of them. Now, facilities, in particular, are a little bit different. I think, you know, you could probably go all. Capabilities, you know, might be a little different because there are some service-unique requirements that I think we have to make sure that we've taken a look at. But in terms of facilities in ten years, it's a possibility of all.



MR. WYATT: Admiral Mateczun, you talked about how when it's time to deploy, that you are able to reach out across the Navy to fill holes and to man platforms.

General Webb, you talked about the use of PROFIS, which is a similar thing, where you reach out across the entire Army to fill holes and staff platforms.

What keeps you from reaching out across—all of you, reaching out across the entire military to fill holes and to staff platforms, especially at the—as our colleagues mentioned, I think—level three and above kind of facility during deployments?

MAJOR GENERAL WEBB: You know, I think if you look at what's been happening the last few years, we are doing a lot of that. When you look at theatre requirements, it may be primarily an Army mission, and the Army is primarily responsible for staffing it, but we do have cases where the Navy and the Air Force are filling those holes, not so much in terms of individuals, but in terms of unit capabilities. Instead of a partial cache, for example, the Air Force may have an [inaudible phrase]. And largely, that's a joint staff determination of how all of that is interacted, but, you know, I think we're doing a lot of that now, and I think that in the future, one of the things that we're going to have to look at is, when we redesign units, can we make them more plug-and-play. Because we talk about being interoperable, but that's not exactly right when it comes to units.

Now, on the individual provider or small group of providers, I think our neurosurgeons are great example of that. When we do need teams, any service that comes provides that. So we are seeing some of that reach-across-service stuff.

COLONEL HAMILTON: One of the things that strikes me about your question is that listening to the other presentations, it's clear that all the services are headed towards a capability-based, modular design approach to medical readiness. And as that design actually matures, my expectation is that resourcing requirements across the services is going to get easier as we begin to understand.

I remember a long time ago, there was an issue of being asked to provide the Army some capability for a truck company from the Air Force. We didn't have any idea what that was. So there are a certain amount of terminology differences, but I think that the way we're headed in this process is ultimately coming to an understanding of what the capabilities are and making that whole process a lot easier.

REAR ADMIRAL MATECZUN: And I think it's standard as a doctrine.

You know, if I'm a planner, and I'm sitting in a theatre someplace, and I'm trying to figure out what medical assets I need, and whether I can get a list of how the Army does it, how the Navy does it, how the Air Force does it, then I'm looking at these different capabilities that I may or may not understand, and even up here, you probably saw different names for everything. I think as those names

and capabilities draw closer to being uniform, and as we have doctrine for being able to do it, it [won't] matter to a combatant commander.

Dr. Dinneen. Dr. Dinneen always raises his hand.

DR. MICHAEL DINNEEN (Director, Strategic Planning and Business Development, TRICARE Management Activity): Sir, I was intrigued by your discussion of linear versus complex systems and the challenge of trying to take apart something that is complex.

I've heard a lot about this issue of trying to separate out the cost of readiness from the cost of health care. I've seen some proposals that would split out structurally the delivery of the benefit versus the delivery of the readiness mission. I'd like to hear your comments on what you think would be the consequences of trying to do such a thing.



REAR ADMIRAL MATECZUN: Rather than, I guess, conjecture, I'd just say, you know, I think we've had examples of that presented here today, and you know, you can write them large, and that's what you would see in our system as well.

You know, I don't think that, you know, to go into much more would be particularly worthwhile.

DR. BURKE: In the Army presentation, you showed that the Army goes through an analysis process, Total Army Analysis (TAA), it looks like every year, and that it has made adjustments based off of that. How onerous is that from a medical perspective? I mean, does

that, by design, help in terms of making sure that you're always pointed ahead, or is it a problem?

MAJOR GENERAL WEBB: It's always a painful process.

Let's say you had 100 different types of marbles laying on the table to play seven different kinds of games with, and someone came along and said, well, you can only have 90 marbles, but you've got to do those—essentially, those same missions.

Which ones do you pick and choose from? Do you think you need more combat casualty care, for example? Do you sacrifice a dental detachment to come out with a bottom line that matches what the Army's essentially allowing you to do within the scenario that's developed for that analysis? And that scenario obviously changes, too.

So it's a lot of staff work. It takes a lot of experience and expertise, I think, to really come through. And even within the Army Medical Department, there's infighting and stuff regarding the importance of what the tradeoffs are.

DR. BURKE: My question really gets to is it better to do it once every five years or every year?

MAJOR GENERAL WEBB: I'd personally prefer to do it every five, but I think it's probably more helpful to do it more frequently just because situations change pretty quickly as more pops up, and as you need to make adjustments, you recognize those adjustments a little further ahead so that you are able to make them.

MS. ALLISON PERCY (Principal Analyst, National Security Division, Congressional Budget Office): Hi, I'm Allison Percy from the Congressional Budget Office.

Earlier, Air Vice Marshal Austin was talking about relying more on Reservists and how important Reservists were in the Australian Military Health Service. I was wondering if each of you could comment on what issues would arise in each of your services if you relied more on Reservists, and perhaps, less on active duty.

What would be your concerns and some of the benefits of such a change?

MAJOR GENERAL WEBB: I think I mentioned in our discussion that a large component of our medical capabilities, 60 percent, are in a Reserve component. That had always been viewed more as a reserve in most of the missions the active component would take on.

But in a prolonged conflict, particularly when your active side is small, you do have to rely more and more and more on that reserve component. I think in any situation, the more you rely on that, the more that you activate or have repeated deployments, the interest in maintaining your Reserve component membership decreases. What we've seen on the medical side are some initiatives that we came up with to try to ease that pain. Instead of jerking an anesthesiologist out of his or her practice for a year—which in some cases destroyed practices—we could activate them for a shorter period of time, 90 days, and they would come in. And, that seems to have been acceptable to the majority of our physicians.

Now, what that does, of course, is it creates an increased need for bodies to come back and fill those 90-day cycles. So I think our reliance on the Reserve component in the last three or four years has been pretty high. And the question always comes up, how long can you sustain the use of certain policies or tapping in of the Reserve component? There are different theories on that.

REAR ADMIRAL MATECZUN: Just a couple of observations, I guess.

There isn't an excess pool of medical professionals that exists in the country today, so whenever we reach out to someone else, we are basically shifting pain someplace. We can shift it into the private sector, and that falls on the back of the Reservists who own their own private practices. We can shift onto other governmental agencies who are members of the Reserves—for instance, the VA—that merely shifts the pain there and doesn't solve the problem of repeated deployments because of the laws that govern how frequently you can deploy someone. So it's good in theory, and it's probably great if you've got a short war.

DR. PANNULLO: Please join me in thanking the panelists.

[Applause]

CONCLUDING REMARKS

DR. RICHARD P. BURKE

DR. PANNULLO: Now we will have concluding remarks for the conference from Dr. Rick Burke, who is my boss. He gets concluding remarks, but after that I get the final word.

Dr. Rick Burke is the Deputy Director for Resource Analysis in the Office of the Secretary of Defense, Program Analysis and Evaluation. He is also chairman of the Cost Analysis Improvement Group. He has been in OSD—or the Office of the Secretary of Defense—since 1988. Prior to his service in DoD, Dr. Burke served in several program management positions at Sandia National Laboratories in Albuquerque, New Mexico. He is an International Affairs Fellow at the Council of Foreign Relations, and was a visiting scholar at Stanford University. Dr. Burke was educated at the Massachusetts Institute of Technology, where he received a Doctorate in Nuclear Engineering and Decision Analysis.

Dr. Burke?

[Applause]

DR. RICHARD P. BURKE: Thank you, Jerry.



As the sponsor of this conference, I wanted to explain what we expected to get out of this conference. Over the years, we've used this conference to bring together communities of interest throughout the Department of Defense. And this year, we chose the medical community because there's a lot going on in medicine in the Department of Defense right now, particularly during the past four years.

This is a community that is very important to the Department of Defense. The leadership of the Department right now recognizes it's

important. I would have to echo Dr. Chu's remarks earlier this morning; this community has performed extraordinarily well in the ongoing operations in Afghanistan and Iraq. And it did that on its own. That reachback model, that I won't go into in detail here, was not a top-down-driven model; it actually came from the community, working together with the Department and the logisticians to make it happen. And it has worked extraordinarily well. You've gotten very little good press for it, but there have been a few articles that have described how well the model has worked. And the Department of Defense and its leadership recognizes you've done that very well.

As Steve Balut mentioned earlier this morning, this conference normally considers issues that are a little bit before their time, and that is the way the conference was structured this year. We just had the final panel of the day addressing the issue of unified medical command in the United States. You heard Dr. Kelley tell us earlier today that we're in the process of developing a plan for moving in that direction, but at this point, we've made no firm commitment, and there has been no direction from the top to implement such a thing. We're really at the very early stages of considering it, and I have to tell you, it's something the Department won't do lightly because, particularly now, there's recognition that it is possible to take organizations that work well and make them not work, in government. The United States has learned that the hard way during the past few weeks, and I think there is some recognition that we want to be careful that we get this right as we move forward. So this conference is part of an education process to start the dialogue about the serious intellectual issues behind the notion of a unified medical command.

We heard from Dr. Ocker this morning that Germany moved to a joint model in the early 2000s, but it may not be applicable in the United States. He warned us about that right up front. I would also point out to you that the timeframes he spoke of were pretty extraordinary: two years to plan, maybe five or more years to implement. It not a trivial move to make that kind of change in an organization the size of his. Think about it: in a \$500-billion-a-year organization like the Department of Defense, it would be a multi-year effort if the department chooses to go that way.

We heard from Dr. Kavanagh that the Canadians have employed the joint model for some time. I take it from the remarks of Dr. Lillywhite, from UK, and Dr. Austin, from Australia, that UK

and Australia have more traditional models, more like the U.S. model, although I note that the titles and the organizational structures look somewhat joint. So it's not obvious to me whether, in reality, those models are exactly like the U.S. models, or whether they have moved a little bit further towards a joint framework.

The point I would make here is that a little bit of intellectual is work necessary to really clean this up. We talk about joint capabilities and speak about joint commands and unified commands. I think that before the United States fully implements this, we're going to have to be more precise about what we are actually talking about. I do expect in the United States, this debate will continue at the leadership levels of the military departments. I would just say this community is very fortunate right now. You have three surgeon generals who are quite intellectually capable. You also have Dr. Winkenwerder and Dr. Chu at the political level, who are quite capable individuals. You should consider yourself lucky; the whole department doesn't have that kind of leadership right now, and so, as we move forward, I would encourage the military services to get engaged in this debate while you have good leadership to really move you forward.

To make another observation—there's really a fundamental difference between the United States and all of the other western countries we heard from today, and it has to do with the model for civilian sector care. In the civilian sector, the United States stands alone, today at least, in that we do not have a national health system or some kind of a national health insurance system at this point. And it greatly complicates the Department of Defense problem, particularly from a cost perspective, on delivering benefit care. Right now, retired military beneficiaries are headed back to the Department of Defense in significant numbers, and they're affecting our cost. And you heard that from both Dr. Chu and Dr. Winkenwerder. Dr. Winkenwerder said he expects that within five years the Defense Health Program will be consuming about \$50 billion a year.

This increase is primarily driven by that civilian and military benefit interface, and it's something he's trying to manage. It's a very tough job.

The other nations represented here today do not have to handle this problem. You have a different set of problems. So it's hard to

make broad comparisons across the various nations. In fact, I think Dr. Ocker, Dr. Lillywhite, Dr. Kavanagh, and Dr. Austin all spoke of a cleaner interface with the civilian sector, where military medicine can treat civilians much more easily, and can possibly send patients to civilian hospitals much more easily. It's harder here in the United States. We heard a little bit from the luncheon speaker, Dr. Augenstein, about some of the arrangements that DoD has been able to make in crossing the military-civilian divide for training purposes. But, you see, the issues that get raised are complicated—specifically those of liability and funding. It's harder in our system to cross this interface, yet I think the Department is interested in doing more of this because the feedback from the operational people coming back from Afghanistan and Iraq is that this training is enormously valuable. So, I sense you will see the Department's leadership trying to encourage more of this type of activity in the future.



On military/civilian mixes, that's a difficult topic because in the United States, it's complicated. It is a complex health care system. But I would say we had a beautiful presentation of the U.S. philosophy on it by Dr. Lillywhite of the UK I think we are on the same sheet of music, essentially, in terms of determining operational requirements, then identifying positions that are military-essential, and then filling in with civilians in those positions that are not military essential.

Dr. Austin seemed to be on the same page but said that he determined the mix with a rough estimate. We like to be a little more rigorous than that, but that was a sense I got.

Dr. Kavanagh mentioned that she has a slightly different problem: she has an historical basis that seems to determine that mix. In the United States, we don't want to use the historical basis because the world is changing as we go forward, and we really want to try to do a better job at predicting what the right mix ought to be in the future.

One other area that we tried to bring out in this conference was a little bit about training clinicians. We had Dr. Augenstein address us at lunch on a program to train active-duty military in a civilian facility, which used to be unheard of in the United States. This is not the way we've traditionally done business in the past, but it is an innovative program, which is very important to the operators coming out of the field. The trainees have described it as some of the best training they've received. And I would encourage the leadership of the medical community and the Department to respond to this feedback because the operational mission is the Department's primary business. Again, because of the nature of the civilian sector, other nations probably have an easier time making these arrangements, because they don't have to deal with a private sector, but in a sense, they are dealing with a national health system or a national insurance program.

I have to say a few words on costs, since this is an economics conference. And costs are the elephant in the room that nobody's talking about. If you look at the cost growth that the Department is facing, most of it is going to be directly determined out of what happens in the civilian sector during the next few years. You heard Dr. Winkenwerder talk about ten percent growth, on average, coming in the civilian sector for the next year.

These costs come right to the Department, those bills will ripple right into his funding line, so he must try to manage that somehow. It's obviously not entirely within the Department's control, and as someone who worries about controlling costs quite a bit, I recognize that. As I think Dr. Winkenwerder mentioned this morning, we're just trying to manage through this. We recognize a lot of it is external circumstance given to the Department.

One other point I would make on that is in agreement with David Chu right now. We tend to be more in the mode of trying to get the right performance levels rather than focusing so much on cost. When we consider the mix of skills and military versus

civilians, these structural changes we're trying to make are really about getting the medical capabilities of the Department optimized so that we can handle all the different contingencies we see around the world. They are very different today than they were during the Cold War. This is spelled out in the operational availability analysis, which we're guiding the entire Department to use for planning.

On the way forward, I think in the United States, it was spelled out, again, by Drs. Chu and Winkenwerder, is putting in place a new set of TRICARE contracts. The BRAC process is moving forward. There are big changes in the medical facilities there and as soon as those are signed off by Congress, they'll be implemented. The MRR (Medical Readiness Review) continues for the next six months or so. And we're actually trying to institutionalize that and give it to the medical community as something to do every year or two to really examine the medical capabilities of the department writ large. We certainly don't want to wait five to seven years before looking, as we've done in the past, at [whether] we have the right capabilities and skill mixes in the U.S. medical forces. And then finally, there's an office of transformation standing up to integrate the BRAC, the MRR, and the Local Area Working Groups as they go forward.

Finally, I want to close with a few comments of appreciation. Our international participants from the UK, Germany, Australia, and Canada have been superb. I hope that, in the past two days, we were able to give them a good sense of what's going on in the United States right now. We do appreciate their participation. The Department participants from the Offices of the Surgeons General, this afternoon's panel, and Dr. Chu and Dr. Winkenwerder took their time to come to IDA today. I do appreciate it. Dr. Augenstein from the Ryder Center: thank you very much for coming today. (We were nervous that this was not going to work out because of hurricane problems, but fortunately, timing is everything, and it worked out just fine for us.) And then finally, to Dr. Pannullo, Dr. Whitley, and Commander Toland, who did a superb job during the past four months of pulling all this together. It's a lot of work to pull together an international conference like this.

I would just close by throwing down the gauntlet to the medical community. You have good leadership right now. It is time for them to lead on—it is time for them to lead on the operational mission, to continue leading and moving the Department forward. This is not that hard. Yes, the world is changing, but you know, if you stand

back and look at the big picture here, those who take an active role in shaping the future are, in a sense, less affected by it.

Thank you.

[Applause]

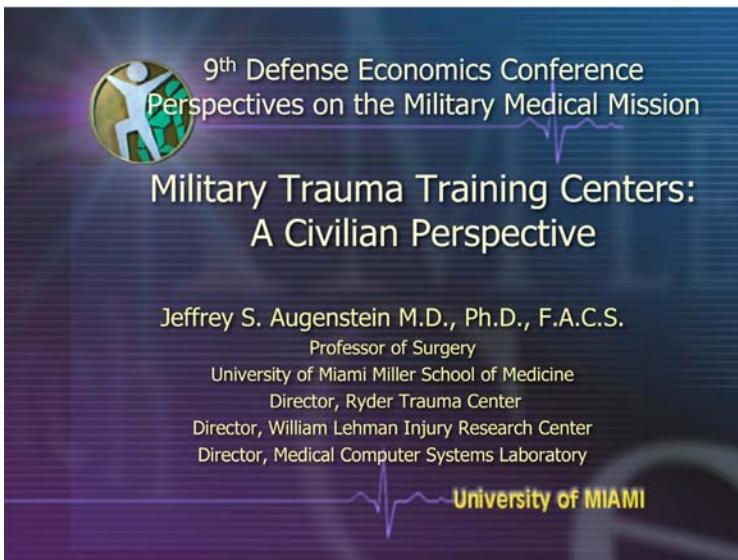
DR. PANNULLO: Thank you, Rick.

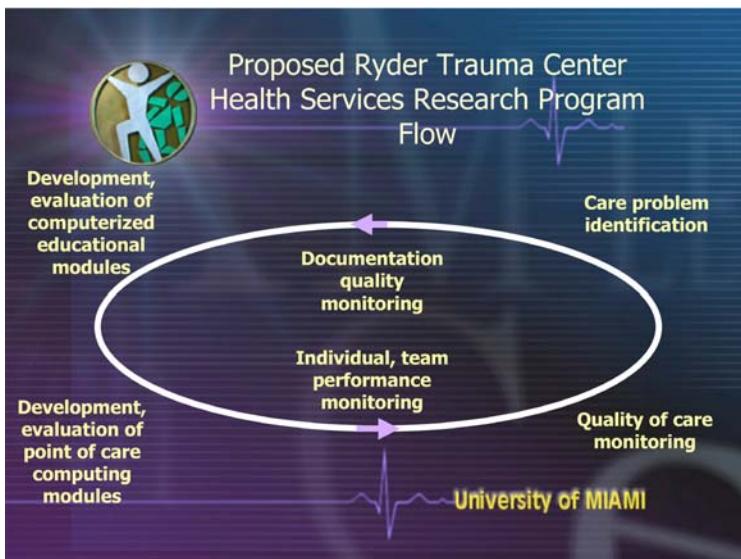
Dr. Burke has thanked some of the behind-the-scenes people who have helped make the conference run so smoothly. The conference is cosponsored by IDA and PA&E. There are some IDA folks as well who put in a very good, strong effort. The principal coordinator at IDA is Stan Horowitz with strong support from Ayeh Bandeh-Ahmadi, as well as Sonnja Settle. Another person who helped out is Stephen Johnston. I thank you all for attending, participating, and making the conference a success. We have a reception after this. Stan Horowitz has asked me to encourage you that our metric this year is to have fewer leftovers than we had last year, so please assist us with that. The reception is an opportunity to continue the discussions that we've been having all day, I hope that you stick around to take advantage of that opportunity. The way to get there is: turn around, go through these double doors, turn left, go through the glass double doors, turn left, go past the guard, past the elevators on the right, turn right, go down a short hallway, and then there's the cafeteria on the left. Put simply, just follow everybody else. The bar is open; the conference is closed.

[Applause]

[The proceedings concluded at 4:55 p.m.]

APPENDIX A







Civilian Trauma Team
Members
Nurse



Fulltime presence
Domain experts
Provide continuous structure
"Know" protocols

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Civilian Trauma Team
Members
Attending

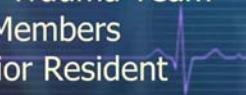


Episodic presence (daily)
Domain experts
Provide structure
"Know" some protocols

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Civilian Trauma Team
Members
Senior Resident



Episodic presence (month)

Domain knowledgeable

Provide structure

"Know" few protocols

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Civilian Trauma Team
Members
Junior Resident



Episodic presence (month)

Domain naive

Provide minimal structure

"Know" few protocols

Major MD labor

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Required Skills

- Decision-making
- Technical
- Administrative
- “Teamwork”

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Traditional MD Training (Apprenticeship)

- Live lectures
- Recommended reading
- Rounds
- M & M Conferences
- Clinical
- Mock exams



Rarely a curriculum

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Traditional Team Member Orientation



- Day-one of rotation overview
 - Some start on service not with majority
- Occasionally a manual

Rarely a total orientation or manual

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Traditional Evaluations



- Individual caregiver
 - Typically MD
 - Objective/subjective evaluations
 - Often on rounds, morning report
 - In-house "Board" training exams
 - American Board of Surgery Exams
- Team
 - Rarely done

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Challenges to Trauma Training

- Few MDs interested
- Mandated resident, fellow work hours (reduced)
- Preponderance of “blunt trauma”
 - Non-operative general surgery experience
 - Diagnostic challenges
- How to prepare for acts of terrorism/natural disasters
- Rapid increase in knowledge/skills base

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Challenges to Trauma Care

- Documentation often poor
- Teams ad hoc
 - Members often of limited experience
 - Training, orientation limited
 - Evaluations limited
- Transfer of care
 - Among clinical teams, locations
 - E.g., ICU, OR, Interventional radiology
- Explanation of protocols, point of care help hard to access

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Problems in Trauma Care



- Technical
- Care decisions
 - Poor initial understanding of patient status
 - Incorrect diagnostic, therapeutic choices
 - Inadequate information transfer at hand-off
 - Lack of evidence-based decisions
 - No protocol
 - Non-application of protocol

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Problems in Trauma Care Impact



- Patient death/injury
- Increased cost of care
 - Extended care
 - Due to clinical errors/complications
 - Delays e.g., in ventilator weaning, awaiting unnecessary tests
 - Inefficient application of resources
 - E.g., costlier tests, drugs with no additional benefit from other choices
- Patient/caregiver dissatisfaction

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Problems in Trauma Care Causes



- Clinician lack of skill/knowledge
- Inadequate description of patient
- Inadequate informatic tools to identify abnormalities, trends
- Poor communication/coordination among caregivers

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Strategy



Identify sources of clinical problems

- Expert interviews
- Q/A analyses
 - MM reports
 - Incident reports
 - Code 15 reports
 - After action reports (military)
- Point of care analyses
 - Care observation
 - Morning report
 - Medical record reviews

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Strategy



Address clinical problems

- Structured education/evaluation
- Computerized applications
- Team training

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Strategy



Monitor clinical performance

- Clinicians' knowledge
- Team performance
- Documentation quality
- Communication quality
- Clinical quality/cost
- Clinician/patient satisfaction

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Tactics



- MIS to characterize errors
- Documentation
 - Evolving injury description
 - Daily assessment
 - Transfer/admission documents
- Lectures/simulations
- Team training
- Protocols

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Hypotheses



Trauma care quality/cost can be improved by iteratively identifying /addressing problems through:

- Multifactorial/multi-strategy monitoring
- Structured, computerized education/evaluation
- Team training
- Point of care computerized
 - Structured documentation
 - Decision support

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Ryder Trauma Center

Multidisciplinary Approach to Care, Training and Research
Surgery, Anesthesiology, Radiology, Epidemiology, Education and
Injury Prevention

An aerial photograph of a modern hospital building complex. The main building is white with a curved facade and multiple stories. A smaller, lower building is attached to the left. The grounds are landscaped with trees and paved areas. The building has several entrances and windows. The text 'RYDER TRAUMA CENTER' is visible on the side of the main building.



Army Trauma Training Center (ATTC)



Train military trauma units for deployment

- Forward Surgical Teams
 - Unit of 20 personnel
 - Surgeons, anesthetists, nurses, medics
 - Trained for clinical care in battlefield
 - 14 days in length/one day off
 - Standard curriculum/168 contact hours

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Army Trauma Training Center at Ryder Trauma Center



Provides platform for:

- Training
- Program development
- Training research
 - Content acquisition
 - Retention
 - Updating
 - Application

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Army Trauma Training Center

*Careful site selection to ensure that we
"train as we fight, train as we care"*

- Multidisciplinary system of care
- Geometry/spatial orientation of system
- Evacuation (ground/air)
- Volume/blunt-penetrating ratio

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Ryder Trauma Center

Comprehensive services

- Pre-hospital, Resuscitation, Diagnostic, Rehabilitation

Houses

- OR, ICU, In-patient, Injury Research Center (William Lehman Injury Research Center), CT, MRI

Volume and Acuity:

- 3600 admissions, Level-1 criteria
 - 1000 with ISS > 15
 - Penetrating, Blunt, Falls
 - Variety: burns, thoracic, vascular, and neuro-trauma
- 5000 to 8000 ER trauma visits; lower acuity



RYDER TRAUMA CENTER



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Trauma Miami-Dade County Florida 1980's

- "War zone"
- Failure of Trauma System
- Nearly overwhelmed America's largest hospital
- Established that dedicated trauma care team could provide the best outcomes





Ryder Trauma Center



- Developed to “decompress main hospital”
- Congressional mandate to become a national laboratory for the study of trauma care
- Integrated information system, CARE

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Ryder Trauma Center



Lowest Fatality Rate
Per
100,000.00
in
Florida
0.01- 20.00

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USF College of Public Health, 2003

Ground Rescue System



- 8 municipalities
- 60% of patients were transported by ground
- 3% of patients arrived by private vehicle



Air Rescue System



37% of patients transported by air

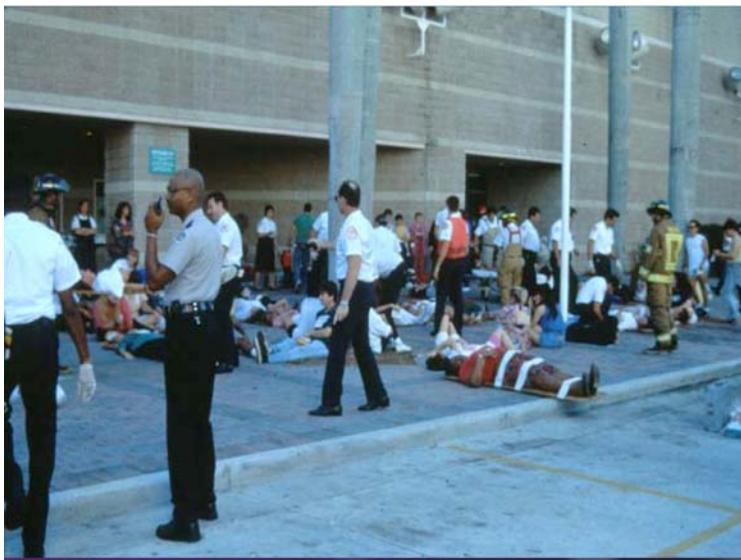


Blunt Trauma





- 2nd degree – blistering, loss of epidermis





Trauma Resuscitation Units

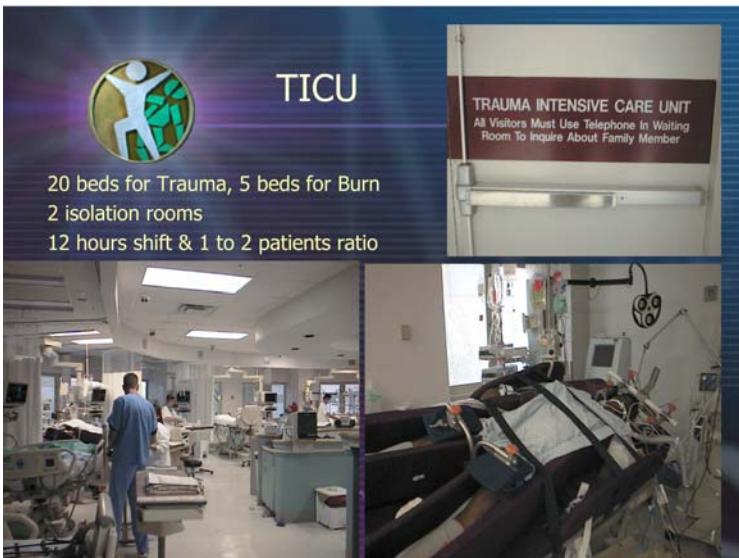
5 bays / 8 observation beds
3 R.N., 1 EMT for each shift
12 hours shift
Radiology – CT, Angio in Resus
10 seconds to the Trauma OR



Trauma OR

- 6 Rooms, one always available for emergency
- 12 R.N./ OR techs on day shift & 5 on night shift
- Trauma anesthesia / PARU







Trauma Floor - 4

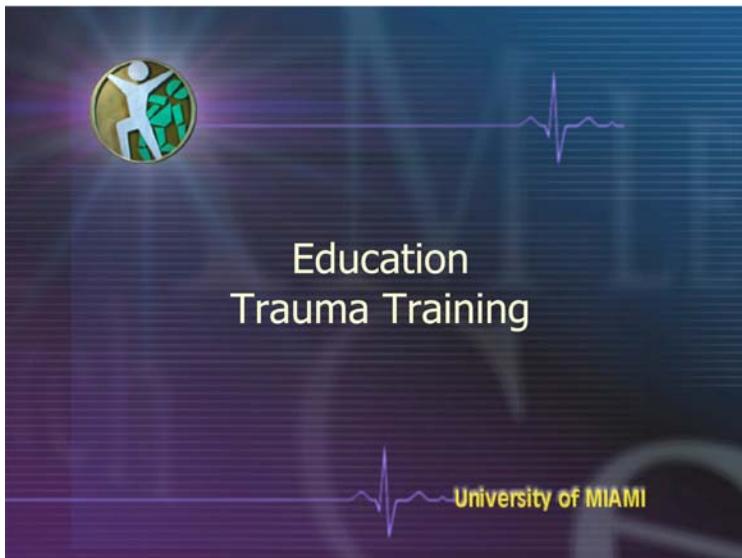
Neurological & Physical Rehabilitation Units



Ryder Trauma Center

Costly to maintain specialty services,
staff, equipment & education for the
Trauma Level I certification

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- Residencies: Surgery, Neurosurgery, Orthopedics, Radiology, Anesthesiology
- Air Force Residents
- Fellowships: Trauma/Surgical Critical Care, Trauma Radiology, Orthopedic Trauma
- Army Fellows
- UM Miller School of Medicine Students
- ATTC



Ryder Trauma Center Training Initiatives

- Trauma curricula
- Simulations
- Clinical laboratories
- Web-based didactic education/evaluation
- Handheld computers
 - Point of care decision support
 - References
 - Documentation
 - Telemedicine

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Challenges for Trauma Care

- Identification/localization of injury event
- Triage to correct facility
- Recognition of occult injuries
- Implementation of evidence-based care
- Communication among caregivers
- Availability of highly skilled practitioners, technology and support personnel
- Access to external expert advice

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Trauma Criteria

	Category 1 (ANY 1 Meets TTC)	Category 2 (ANY 2 Meets TTC)
AGE		55 years old
AIRWAY	Assisted / Intubated	Respiratory rate 30
CONSCIOUSNESS	Alter mental status	BMR 5
	GCS < 12	
CIRCULATION	HR > 120 bpm < 90 mmHg.	Heart rate 120 bpm
FRACTURE	2 + long bone fractures	Long bone fracture
CUTANEOUS	2 nd ° or 3 rd ° burns to 15% TBSA	Major degloving injury
	Amputation	Avulsion > 5 inches
MECHANISM OF INJURY		GSW Ejection Steering wheel deformity

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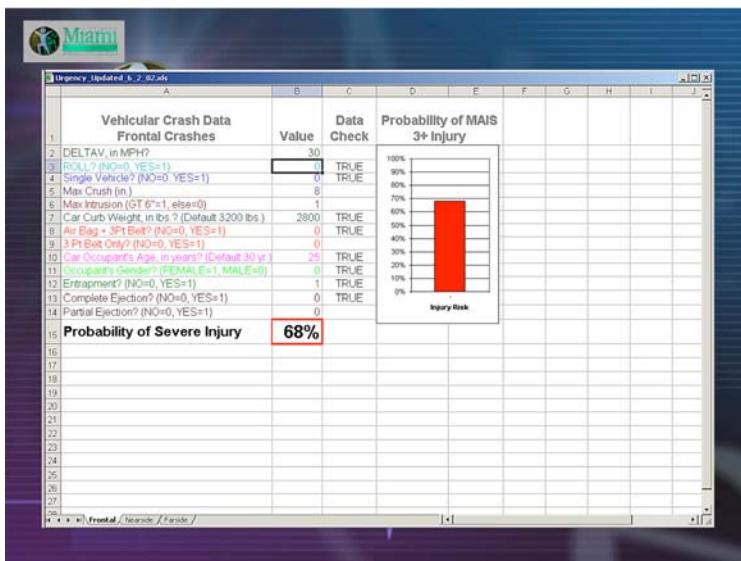


Nearly 60% of all car crash victims who are brought to the Ryder Trauma Center Under "High Suspicion of Injury" require *further treatment*

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Battlefield Medical Information System Tactical (BMIST-J)



- Provides all-in-one suite of mobile applications that empower providers via access to critical medical information, powerful clinical & decision support tools to accurately create an electronic health record.
- Synchronizes with Joint health surveillance and medical information systems from the earliest echelons of care through chronic care provided by the Veterans Administration



BMIST is the approved Joint solution for the Department of Defense surveillance need at the forward area of care with more than 5000 in use world-wide

Electronic Information Carrier “Electronic Dog Tag”

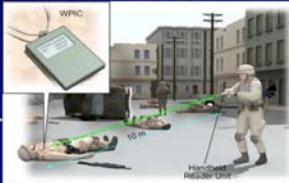


Complete electronic health record



Wireless electronic dog tag

Electronic dog tag



A slide titled "Research Program Embodies Injury in America" with a dark blue background and a faint ECG line. It features the same circular logo in the top left and the University of Miami text in the bottom right. The main content is a bulleted list of research areas:

- Epidemiology
 - Car, bicycle, motorcycle, pedestrian studies
- Biomechanics
 - Auto crash injury
- Prevention
 - Outreach, program evaluation
- Education
 - Training development, evaluation
- Acute Care
 - Innovative monitoring, therapy, molecular biology
- Rehabilitation
 - Brain injury

Research

DoD

- Office of Naval Research
- Telemedicine & Advanced Technology Research Center
- Congressionally Directed Medical Research Programs
- Army Medical Department Center & School

NIH

- Trauma Training Grant
- Australian NIH
- Multinational, multicenter
- Injury mechanism evaluation

Miami-Dade County Office of Emergency Management

- Mass casualty preparedness evaluation

Industry

- Clinical drug, technology trials
- Injury mechanism evaluation
- Safety systems evaluation

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Army Trauma Training Center

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Background



- 1992-3: GAO concerns regarding trauma readiness in Operation Desert Storm
- 1995: FY06 National Defense Authorization Act requires demonstration program for military trauma training in civilian hospitals

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Background



- 1997: Demonstration at Sentara Norfolk General Hospital, VA, for general surgeons
- 1999: Joint program (Joint Trauma Training Center) at Ben Taub Hospital, Houston, TX
- 2001: Closure of JTTC

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Background



- 2001/2
 - Navy Trauma Training Center (NTTC) at LA County
 - + USC Medical Center, CA
 - Air Force C-STARS program
 - R Adams Cowley Shock Trauma Center, MD
 - University of Cincinnati Medical Center
 - St. Louis University Medical Center
 - Army Trauma Training Center (ATTC) at University of Miami/Jackson Memorial Hospital (JMH)

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Army Trauma Training Center (ATTC)



- Trains trauma units for clinical deployment
 - Units = 20-24 personnel
 - Rotation = 14 days
 - Daily 0630-1930, one 24-hr day, one day off
 - No distractions from other commitments

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ATTC



- Planned, structured program in a supervised zone of safety
- Collective multidisciplinary trauma training
- Minimizes primary on-the-job trauma training in a combat zone

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ATTC



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ATTC
• Common language in teamwork



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ATTC
• Common language in teamwork
• Common language in trauma care



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ATTC

- Common language in teamwork
- Common language in trauma care



Army Trauma Training Center Operation Iraqi Freedom
University of MIAMI

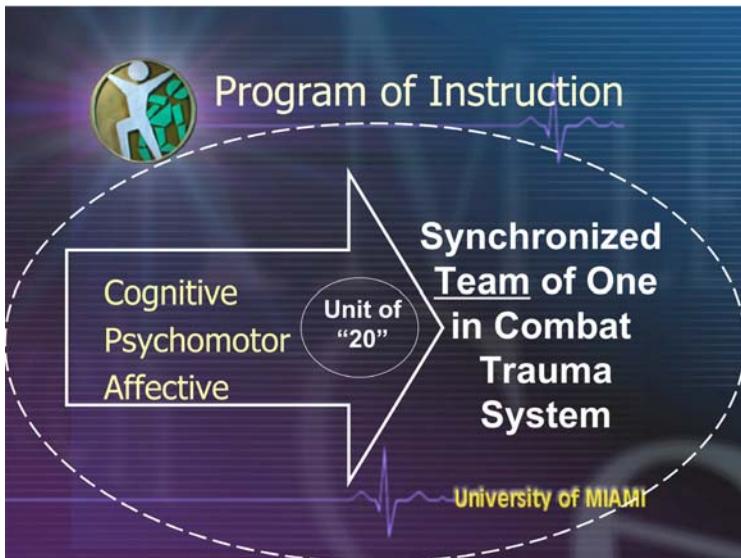


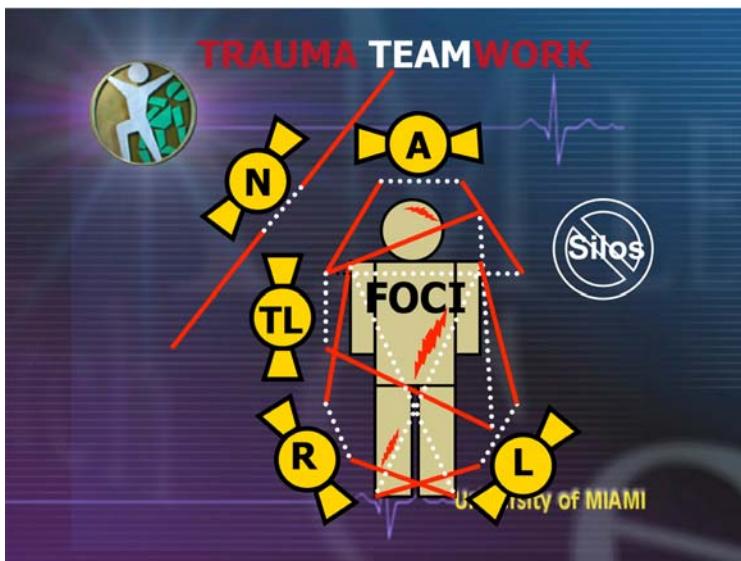
ATTC

- Common language in teamwork
- Common language in trauma care



Army Trauma Training Center Operation Iraqi Freedom
University of MIAMI
“Training teams to be a team”







TRAUMA TEAMwork



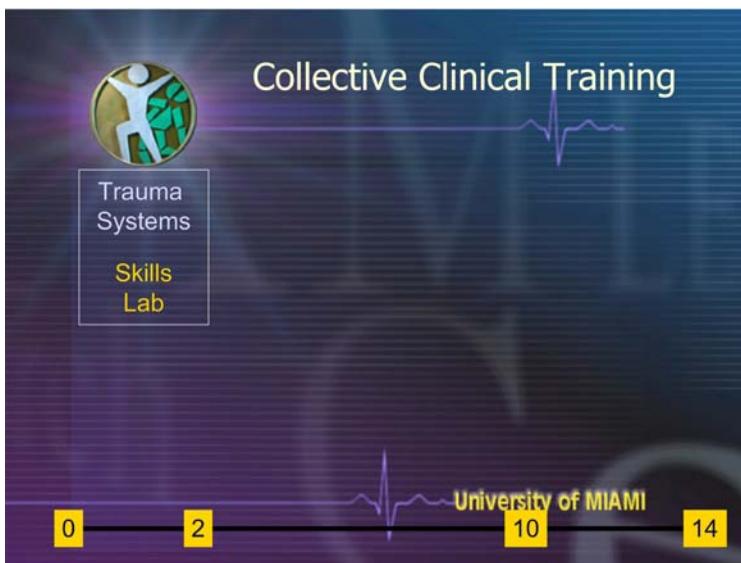
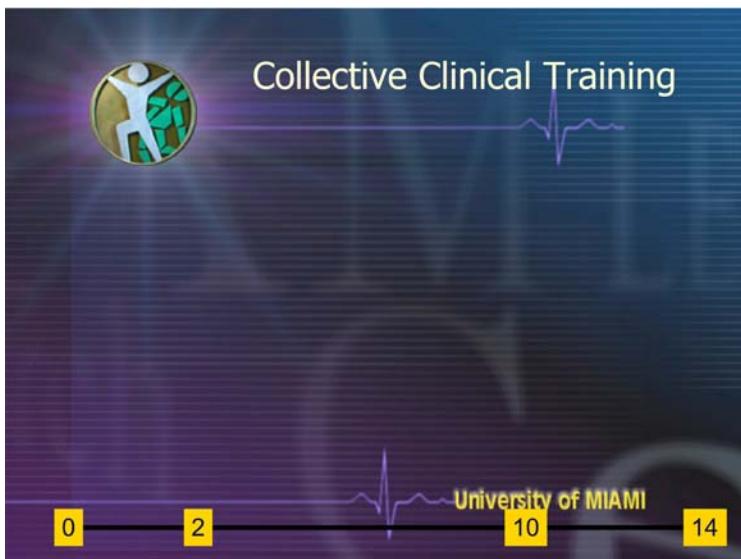
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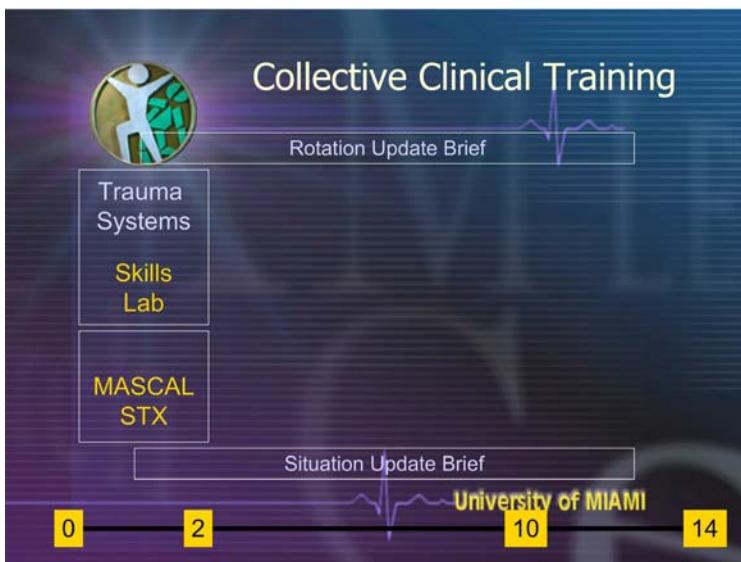
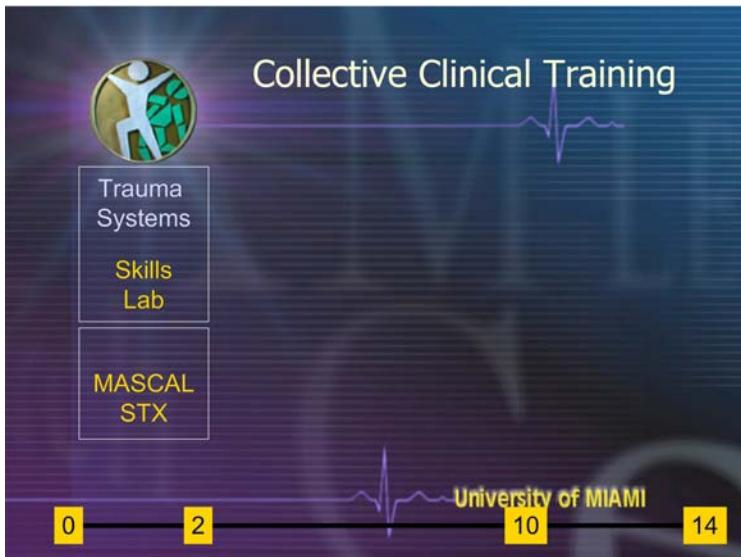


TRAUMA TEAMwork



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ATTC Costs



- UM contract: \$280K
- JMH contract: \$150K
- ATTC personnel
 - 10 military (two unfilled positions)
 - 2 contract civilians

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ATTC Costs



- Travel for rotating units
- Lodging for rotating units (contract with local hotel)
- Training supplies
- Information technology

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ATTC Business Case Analysis



Total cost of ATTC (including personnel)

=

Actuarial cost of 3 trained soldiers

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Results

RYDER TRAUMA CENTER

37 Units Trained



7
7
2
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T

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Results



- Multidisciplinary training
 - 100 general surgeons
 - 30 orthopaedic surgeons
 - 70 nurse anesthetists
 - 111 ER/OR/ICU nurses
 - 390 medics
 - 36 executive officers

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Results



- < 5% of unit personnel repeat
- Units returning to ATTC at two years have nearly complete turnover
- No reserve FST since Jan 04

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Unit → Team



- My unit functions better in the care of acutely injured patients. [1-5 scale, post-rotation, 6 units]: Average 4.7
- My unit functions well in the care of acutely injured patients. [1-5 scale, 5 units]: Average 1.0 increase pre/post rotation

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Results



- DoD Center of Excellence in Combat Casualty Care Team Training
- 2005 DoD Patient Safety Award for Team Training

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Outcomes



- All units deployed in Global War on Terrorism
- "You helped us save soldiers' lives."
 - Team clinical confidence
 - Team clinical execution
 - Command structure
- Clinical credibility with combatant commanders

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Outcomes



- Research grants to University of Miami
 - BMIS-T: \$210K
 - Medical Reserve Team Training: \$2M/4 yrs
 - Trauma Team Distance Learning: \$285K
- Congressional line-item to Lehman Injury Research Center: \$1.5M

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Impressions



A. Trauma Training Center programs require

- Planned, structured curriculum within corporate trauma training strategy
- Defined primary focus for clinical training
 - Individual
 - Collective

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Impressions



B. Trauma Training Centers require careful site selection

- Multidisciplinary system of care
- Geometry/spatial orientation of system
- Evacuation (ground/air)
- Volume/blunt-penetrating ratio

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Impressions



C. Trauma Training Centers require explicit business plans

- Integrated management infrastructure
- Key issues addressed
 - Licensure
 - Liability coverage
- Funding (not gratuitous)
 - Service support (including office and training space)
 - Training support

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Impressions



D. Trauma Training Centers have vulnerabilities

- Constrained resources
 - Military personnel shortages and turnover
 - Inconsistent funding for training
- Inefficient support infrastructure
 - Long-distance logistics
 - Cyclical and lengthy contracting
- Ineffective personnel functions remote from parent command

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Impressions



E. Civilian trauma centers and military field medical units face similar issues

- Quality assessment and improvement
 - Point of care computing
 - Documentation
- Patient safety
- Education and training
 - Simulation
 - Decision support

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Recommendations



1. Promote Trauma Training Centers as platforms for

- Training
- Program development
- Research in training
 - Teamwork assessment
 - Simulation

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Recommendations



2. Integrate management of Trauma Training Centers with civilian trauma centers
 - Administration provided by civilian trauma centers
 - Military & full-time civilian clinical staff

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Recommendations



3. Establish corporate commitment to existing Trauma Training Centers through consistent resourcing before opening additional centers

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Recommendations

4. Define corporate strategy for trauma training at individual provider and collective unit levels, and determine the role of Trauma Training Centers in that strategy

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Conclusion

- Military trauma training in civilian trauma centers is a viable training model.
- Opportunities for research in trauma training are significant within this model.

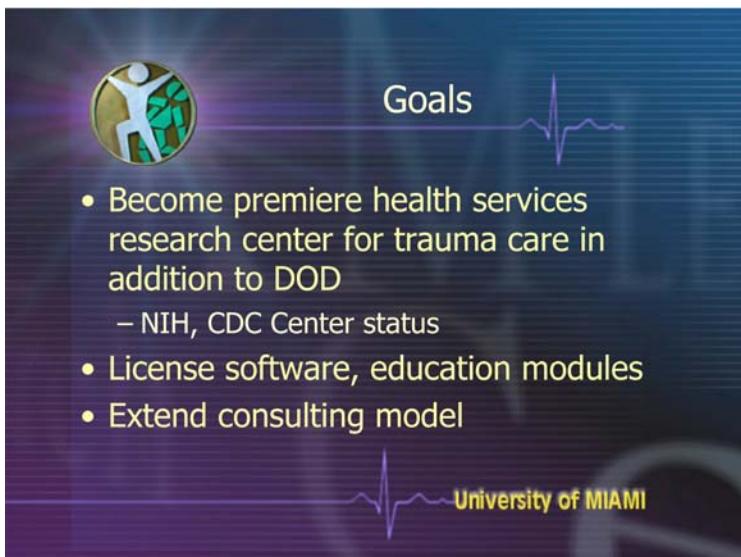
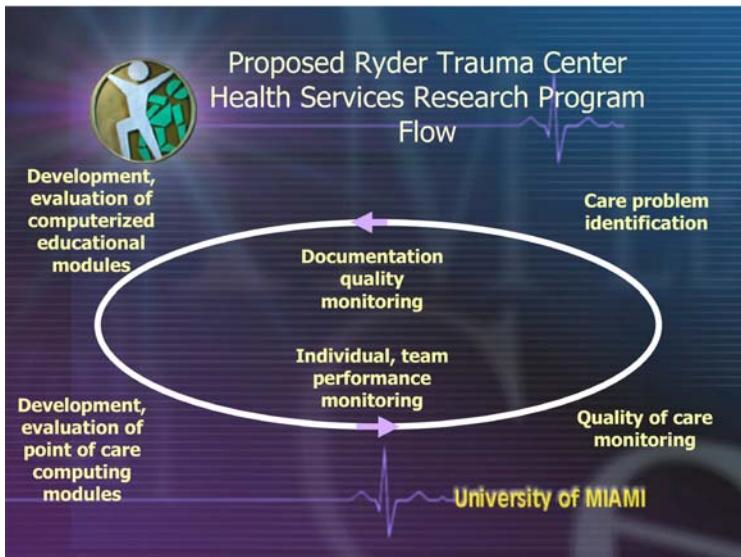
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Health Services Research
Agenda

- Computerized capture of point of care observations
- Real-time monitoring of quality indicators
- Development and analysis of point of care countermeasures including education, passive and active advice

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APPENDIX B

An Operationally Focused Service – UK Perspective



Major-General Louis Lillywhite, Director General, Operational Medical Capability

General Principles

- Organise for war, adapt for peace.
- But:
 - Organise for the most demanding?
 - Or the most likely?
 - Or both?
- Major driver for “most likely” is “Harmony Rules”.



Harmony

□ Recognition that disruption is major factor in retention, particularly for families.

□ Single Services set Harmony Rules:

➢ Army:

- Units: 6 months on ops in 30 months.
- Individuals: < 415 days in 30 months.

➢ Navy: <660 days in 3 years.

➢ Air Force:

- Units: 4 months on ops in 20 months.
- Individuals: <140 days in 12 months.



Harmony

□ Not absolute:

- Will be broken for major operations.
- Is being broken for shortage groups.
- Application varies with some specialist groups.

□ Assists in setting appropriate manpower levels.

□ Poses problems in mixed Service (Navy/Army/Air Force) units.



Principles: Uniformed Personnel

- Uniformed personnel only required:**
 - If required to deploy.
 - Filling a post for which only uniformed personnel have necessary skills.
 - Essential leadership/command/staff posts.
 - Where cheaper than civilians.
- Otherwise posts should be filled by civilians.**



Principles: Regular

- Regular (instead of Reservists):**
 - If a full time uniformed post.
 - If required to deploy at short notice.
 - If have skills only available to Regular personnel.
- Otherwise posts should be filled by Reservists.**



Principles: Standard of Care

- Cold War:
 - Quantity instead of quality.
 - “Greatest good for greatest number”
 - Austere, high mortality rates expected.
- Post Cold War - Quality care, but:
 - Based on outcome?
 - Or, based on civilian standards and if so which ones?



Principles – Colour of Cloth

- Role 1 – Medical personnel of same Service.
- Role 2 – Medical personnel ideally of same Service.
- Role 3 – Medical personnel of any Service.



Application

□ Primary Care:

- Operational establishments sufficient to cover operational requirement.
- Frequent deployments in Northern Ireland led to additional civilian medical personnel to provide continuity and care for dependants.



Application

□ Training (except basic military):

- Now tri-Service.
- Professional training in partnership with civilian University.

□ Evaluation – a success but:

- Differences in single Service ethos an irritation.
- Professional training a success, but lack of military ethos a concern for retention.



Application

□ Dental Services:

- Tri-Service.
- More accountable.
- More flexible.

□ Evaluation: Considered a success but:

- Ethos issues – separation from single Service but no objective impact.
- Not eliminated differences in fitness rates between Services.
- Civilianisation not significant as civilians more expensive.



Secondary Care

□ Pre 1994:

- Peacetime Hospitals deployable but at expense of peacetime role.
- Duplication of NHS support.
- Expensive.
- Apparently inefficient.
- Significant civilian workforce.



Secondary Care

□ 1994 Proposals:

- Close peacetime military hospitals, form Cadre deployable hospitals.
- Clinicians embedded in civilian hospitals, available for training and deployment.
- NHS paid for work of uniformed clinicians, MOD paid for care of uniformed patients.
- Tri-Service Agency responsible for managing clinicians in peace and for commissioning care for Servicemen.



Secondary Care

□ Evaluation – almost a disaster:

- Clinicians voted with their feet.
- Civilian hospitals unable or unwilling to give Servicemen priority for treatment.
- Conflicting aims – tri-Service Agency concentrate on relationships with NHS at expense of meeting single Service needs.
- Split loyalties for personnel: NHS or military?
- Met neither the treatment needs of the Armed Forces, nor provided the clinical manpower for the single Services.



Secondary Care

Evaluation:

- Has caused a gap between clinicians in civilian hospitals and those who command and manage them on operations.
- Differences between single Services caused significant difficulties.
- Not "future proof":
 - Radiology.
 - Pathology.
- Insensitive to ethos related issues:
 - Child protection.
- Error of judgement:
 - Gynaecology.



Summary

- Military medical services should be operationally focused.
- Remember peacetime needs of patients.
- Medical personnel must have a professionally fulfilling place of work when not deployed.
- Place of work in peace must promote and sustain military ethos.
- You are where you are – changes affecting health professionals must involve them in planning, be future proof, and be sensitively handled.
- An operationally focused medical service without people constrains National policy.



APPENDIX C

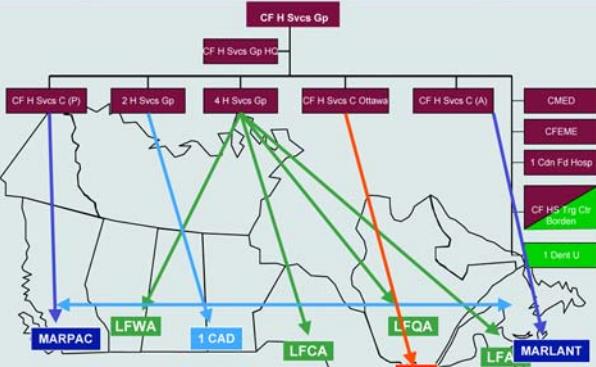
<p>The Canadian Forces Health Services</p> <p>Presentation to the Defense Economics Conference</p> <p>Commodore Margaret Kavanagh Director General Health Services / Commander Canadian Forces Health Services Group</p>	 
<p><i>Understanding and Caring / Compréhension et bienveillance</i></p>	 <p>CANADIAN FORCES HEALTH SERVICES SERVICES DE SANTÉ DES FORCES CANADIENNES</p> 

OUTLINE

- **Brief overview of the CF H Svcs Gp**
- **Medical force management – Info/Issues**
 - Uniformed Health Care Providers
 - Specialist career path
 - Skills maintenance

<p><i>Understanding and Caring / Compréhension et bienveillance</i></p>	 <p>CANADIAN FORCES HEALTH SERVICES SERVICES DE SANTÉ DES FORCES CANADIENNES</p> 
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CF Health Services Group - TBD



Understanding and Caring / Compréhension et bienveillance

CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Operations

- Since 1990 – **40** international and **13** domestic/continental missions
- Challenging due to the critical shortage of a number of uniformed health care providers

Understanding and Caring / Compréhension et bienveillance

CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Organizational Profile

- 5,500 health services professionals + 600 civilian personnel on contract
- 83,000 clients (Regular and Reserve)
- 77 installations (56 medical / 21 dental)

Understanding and Caring / Compréhension et bienveillance



CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Uniformed Health Care Providers

Specialist Physicians - Internal Medicine, General & Orthopaedic Surgery, Anesthesia, Psychiatry, Diagnostic Imaging

General Duty Physicians

Dentists

Pharmacists

Social Workers

Physiotherapists

Nurses

Bioscience Officers

Physician Assistant

Dental Assistants

Dental Hygienists

Medical Technicians

Preventive Medicine Techs

Radiology Technicians

Operating Room Technicians

Aero-medical Technicians

Understanding and Caring / Compréhension et bienveillance



CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Medical Force Accession

2001 – Introduction of a clinical career progression path

Two-fold rationale

- Improve the retention rate of experienced and advanced-qualified medical specialists
- Recognize the critical requirement of the CF for high quality professional leadership within speciality areas

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CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Maintenance of Clinical Skills

- Rely heavily on the civilian health care system
 - Specialists work fulltime & removed only for deployments
 - Civilian back bone to health care in CF clinics to allow generalists to complete clinical operational training & deployments

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CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Maintenance of Clinical Skills Challenges

- Difficulty extracting these providers without advance notice and scheduling
- Difficulty gaining clinical placements for certain “unique” military providers such as Physician Assistants
- Competition for clinical placements with numerous civilian entities
- Difficulty in maintaining a military ethos among uniformed clinicians

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CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Managed Readiness Concept

- Based on known schedule of deployment rotations
- Senior Practice Leaders in each specialty area responsible for managing personnel on list of high, medium, and low readiness. Also responsible for notifying/advising higher headquarters of issues/areas of concern

Understanding and Caring / Compréhension et bienveillance



CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



Questions?



Understanding and Caring / Compréhension et bienveillance



CANADIAN FORCES
HEALTH SERVICES
SERVICES DE SANTÉ DES
FORCES CANADIENNES



APPENDIX D



Our Mission and Priorities

Navy Medicine's mission is Force Health Protection. We promote, protect and restore the health of our Sailors and Marines, families, retired veterans and all others entrusted to our care...anytime, anywhere.



Navy Medicine's Priorities

- **Readiness – Aligned and Agile**
 - Operational Excellence
 - Responsiveness and Agility
 - Homeland Defense
 - Medical Intelligence and Research
- **Quality, Economical Health Services**
- **Shaping Tomorrow's Force**
- **One Navy Medicine – Active, Reserve and Civilian**
- **Joint Delivery of DoD Health Services**
 - Combat Service Support

2



Navy Medicine's Dual Value

Force Health Protection

Major Combat Ops >>

Spectrum of Care

>>Stateside Facilities

Beneficiary Care



Navy Medical Community



4 Flag-level Intermediate Commands
28 Military Treatment Facilities (Hospitals)
135 Medical Clinics and Branch Clinics,
includes dental facilities.
6 Specialty Commands



Operational
Medicine



Environmental &
Preventive Medicine



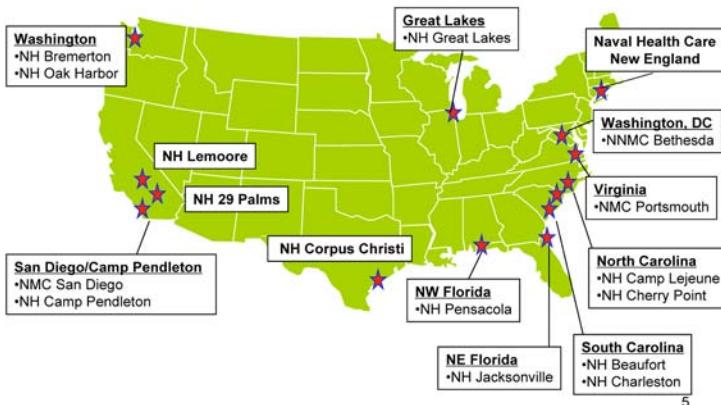
Research &
Development



Education
& Training

4

Major Navy Medicine Facilities – US “Force Projection Platforms”



Overseas Naval Medical Facilities



Navy Operational Health Care Support

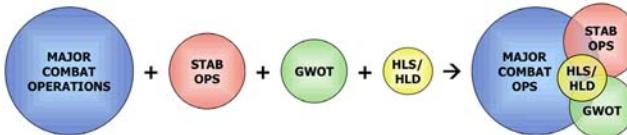


7

Mission Overview GWOT as New Baseline

• Demand signal

- September 11, 2001 fundamentally changed our beliefs and assumptions
- Strategic deterrence, GWOT, homeland security/defense, stability operations
- Surge mission **flexibility** – requires different capability and personnel mix
- Joint interoperability → Joint Medical Command

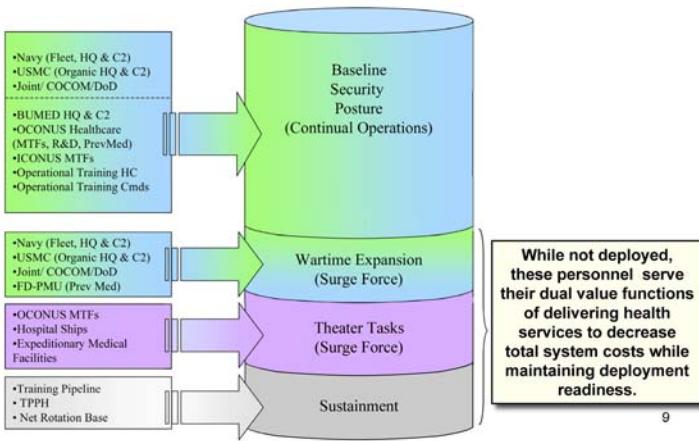


• Initiatives

- Platforms smaller, modular, mobile, rapid response
- Ability to **sustain** combat support (surge) operations
- Equipment more sophisticated → higher cost and maintenance
- Increased training requirements

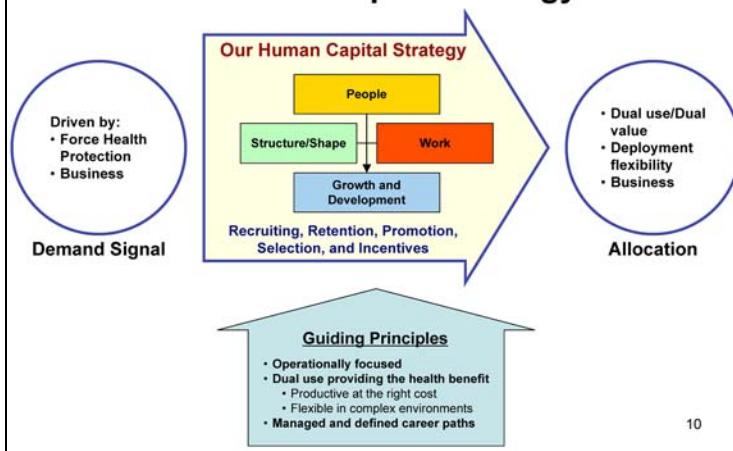
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Medical Force Structure Requirements



9

Navy Medicine Human Capital Strategy



10

Deployment Strategy

Building Block Mission Flexibility



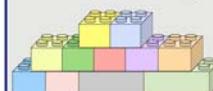
Combat Casualty Care



Humanitarian Assistance



GWOT Homeland Security

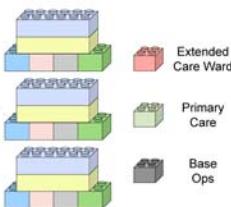


Building Block Mission Flexibility

Combat Casualty Care



Mission Extension



Increased Combat Support

Mission Expansion



Humanitarian Assistance

Advantages of Modularity

- Mission flexibility
- Interchangeability
- Easier to resupply and modernization
- Logistic shaping for minimal footprint
- Predictable staffing and equipment sets

Transformation of the Medical Force

- We are transforming the way we train and deploy
- Medical Force should be predominantly sized to readiness requirements
 - Homeland Defense and Humanitarian Missions should be considered
 - Overseas Facilities present unique challenges
- Maintaining the right skills and specialty mix will require:
 - Innovative partnerships and placements
 - Varied Recruitment and Retention Incentives
- Dual Use provides economic benefit in most cases

13



14

APPENDIX E



Army Perspectives on the Military Medical Mission

Presented to
FY 2005 Defense Economic Conference

Major General Joseph G. Webb
Deputy Surgeon General
22 September 2005

1

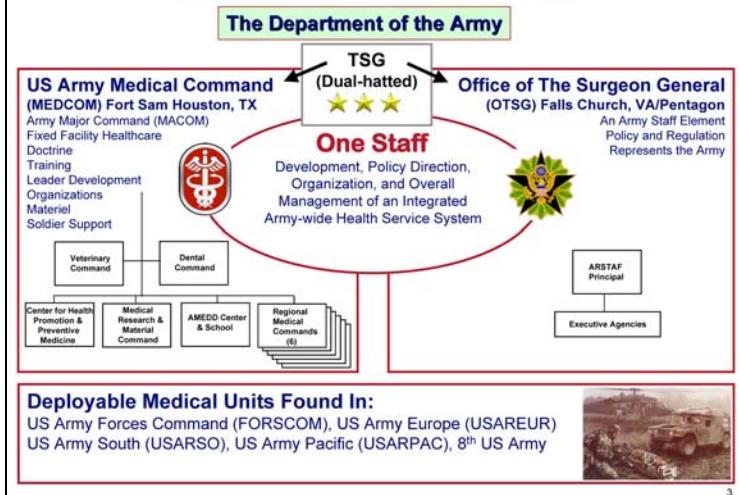
Agenda

Where We Are and Where We Are Going ...

- *AMEDD Organization*
- *AMEDD Mission*
- *AMEDD Transformation*
- *The Future*



AMEDD Organization



3

AMEDD Mission

- **Deploy The Force**
 - Project and Sustain a Healthy and Medically Protected Force.
- **Deploy the Medical Force**
 - Train, Equip and Deploy the Medical Force.
- **Care for Families**
 - Manage and Promote the Health of the Soldier Family and the Military Family.



"The preservation of a soldier's health should be the commanders first and greatest care."
- Regulation for Order and Discipline of the troops, 1779

4

The AMEDD Mission - A "Three Pronged" Focus



Business and management of military medicine must include all three !

5

AMEDD Global Engagements



6

THE AMEDD One Mission – Interdependent Systems



7

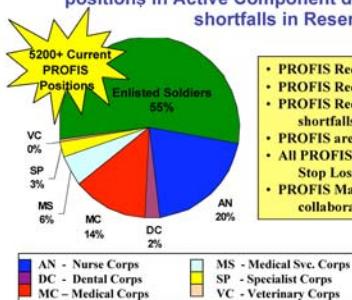
What is PROFIS?

"Provide Trained Medical Soldiers to Deploying Tactical Units"

The Professional Filler System (PROFIS)

(Army Regulation 601-142; Proponent is The Surgeon General)

U.S. Army Medical Command (MEDCOM) will provide trained professional medical personnel, officer and enlisted, to fill all vacant required medical positions in Active Component deploying units and help supplement shortfalls in Reserve Component units.



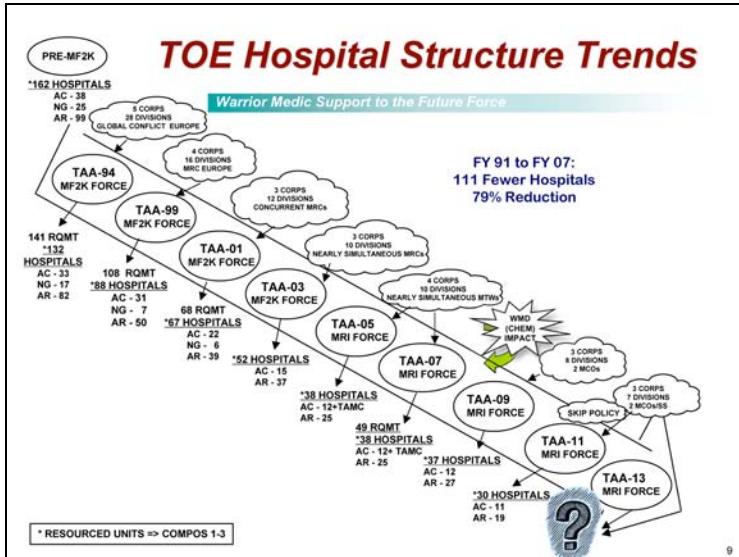
- PROFIS Requirements = Required Strength – Authorized Strength
- PROFIS Requirements = Approved Authorized Shortages to the ODP
- PROFIS Requirements are periodically built to support USAR unit shortfalls, especially those in receipt of deployment orders (AC-RC)
- PROFIS are reported as Assigned and Available on USRs
- All PROFIS are TCS'd to deploying units but are not subject to Stop Loss / Stop Move policy
- PROFIS Management is conducted at HQ, USAMEDCOM in collaboration with deploying MACOMs and FORSCOM

"PROFIS has been a very successful system for the Army since implementation in 1980"

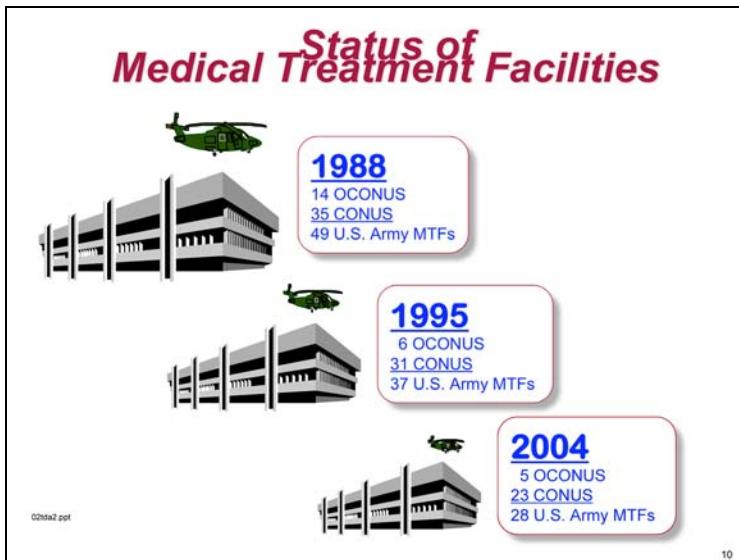
* PROFIS requirements gradually change throughout any given FY. VETCOM has PROFIS but less than 1%

As of 14 September 2005

8



9



10

BRAC 2005 – Impact on AMEDD

BRAC Recommendations

- ✓ Realign Health Care Activities in National Capital Area
 - Walter Reed National Military Medical Center at Bethesda
 - Belvoir Army Community Hospital
- ✓ Disestablish inpatient services at Ft. Eustis
- ✓ Realign Medical Activities in San Antonio
 - Wilford Hall inpatient realigned to Brooke Army Medical Center
- ✓ Establish Joint Center for Medical Enlisted Training at Ft. Sam Houston
- ✓ Establish Joint Centers of Excellence in Biomedical Science
- ✓ Closure of Medical Treatment Facilities at Ft. Monmouth, Ft. McPherson, Ft. Monroe
- ✓ Collocate service Medical Headquarters



11

Military to Civilian Conversion



- Medical structure, force management, health education, and health care business processes are highly sensitive to programmatic turmoil
- AMEDD supportive of initiatives to identify military billets to help offset operational shortfalls, provided it's done right
- Sufficient funding must be programmed to replace any lost military medical capability
- Careful assessment is required to determine potential impact on health care costs, mission, and force management



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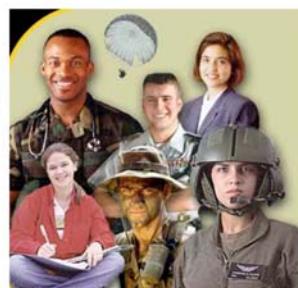
Unified Medical Command

- Program Budget Decision 753 dated 23 Dec 2004
- “Direct the Under Secretary of Defense (P&R) to work with the Chairman of the Joint Chiefs of Staff to develop an implementation plan for a Joint Medical Command by the FY 2008 – FY 2013 Program/Budget Review”
- Senior Army leadership and TSG strongly supportive
- Significant savings from reorganization expected when DoD medical overhead activities are structured correctly

13

The Future

- Trend to reduce uniformed medical structure in the Institutional Army will continue
 - ✓ Careful assessment required
 - ✓ Sufficient funding must be programmed to offset realigned military medics
- Medical force structure requirements for the Army Modular forces are expected to grow
 - ✓ 2500 to 3500 new medical personnel requirements
- Army will continue to rely heavily on PROFIS to help meet operational requirements
- Unified Medical Command looming on the horizon



14

APPENDIX F: AGENDA

0800–0830	Continental Breakfast
0830–0930	Welcome and Keynote <i>Welcome: Dr. Stephen Balut, Institute for Defense Analyses, and Dr. Jerry Pannullo, Office of the Secretary of Defense, Program Analysis and Evaluation</i> <i>Keynote Address: Dr. William Winkenwerder, Assistant Secretary of Defense for Health Affairs</i>
0945–1030	Transforming the Medical Force Structure <i>Dr. David Chu, Under Secretary of Defense for Personnel and Readiness</i>
1045–1145	Perspectives on Military Medical Command Structures <i>Vice Admiral Karsten Ocker, Chief of the Medical Service Staff and Surgeon General of the German Bundeswehr</i> <i>Major General Joseph E. Kelley, Joint Staff Surgeon, J4</i>
1200–1315	Lunch Speaker <i>Dr. Jeffrey S. Augenstein, Director of the Ryder Trauma Center, Miami, FL</i>

1330–1500	Focusing the Force on the Operational Mission: International Perspectives
	<i>Major General Louis Lillywhite</i> , Director General of Medical Operational Capability, Defense Medical Services Department, United Kingdom
	<i>Commodore Margaret Kavanagh</i> , Director General Health Services/Commander, Canadian Forces Health Services Group
	<i>Air Vice Marshal Tony Austin</i> , Head, Defence Health Services, Defence Health Service Branch, Australian Department of Defence
1515–1630	Military Health System: Reconsidering the Dual Mission Framework
	<i>Major General Joseph Webb</i> , Deputy Surgeon General of the Army/Chief of Staff, U.S. Army Medical Command
	<i>Rear Admiral John Mateczun</i> , Deputy Surgeon General of the Navy/Vice Chief, U.S. Navy Bureau of Medicine and Surgery
	<i>Colonel Mark Hamilton</i> , Executive Assistant to the Surgeon General of the Air Force
1630–1645	Closing Remarks
	<i>Dr. Richard P. Burke</i> , Deputy Director for Resource Analysis at the Office of the Secretary of Defense, Program Analysis and Evaluation
1700–1830	Reception

APPENDIX G: ATTENDEES

Adebayo M. Adedeji

Principal Analyst, Congressional Budget Office

Lieutenant Colonel Jeffrey P. Angers

Program Analyst,

Office of the Secretary of Defense, Program Analysis and Evaluation

Jeffrey S. Augenstein

Director, Ryder Trauma Center, Miami, FL

Air Vice-Marshal Tony Kenneth Austin

Head, Defence Health Services, Australian Defence Force

Ayeh Bandeh-Ahmadi

Research Associate, Institute for Defense Analyses

Richard R. Beauchemin

Deputy Division Chief, Force Management Division,

Office of The Surgeon General

John Becker

Chief, Requirements Development, TRICARE Management Activity

Russell W. Beland

Deputy Assistant Secretary of the Navy, Manpower Analysis & Assessment

Lieutenant General Erich Wolfgang Bick

Commander Joint Medical Forces Command, German Bundeswehr

Clayton Austin Boenecke

Chief, Capital Planning Branch, TRICARE Management Activity

Captain William P. Bradley

Navy DSG Executive Asssistant, Bureau of Medicine and Surgery

Richard P. Burke

Deputy Director, Resource Analysis

Office of the Secretary of Defense, Program Analysis and Evaluation

Colonel Tony Carter

Director, Deployment Medicine and Rehabilitation

Office of the Assistant Secretary of Defense (Health Affairs),

Deployment Health Support

Soyong Chong
Operation Research Analyst,
Office of the Secretary of Defense, Program Analysis and Evaluation

David S. C. Chu
Under Secretary of Defense (Personnel and Readiness)

Herbert A. Coley
Chief, Manpower Division
Headquarters, U.S. Army Medical Command

Craig E. College
Deputy Assistant Secretary of the Army (Infrastructure Analysis)
Department of the Army

Carl J. Dahlman
Senior Economist, RAND Corporation

Robert Daigle
Operations Research Analyst
Office of the Secretary of Defense, Program Analysis and Evaluation

Gregory Arthur Davis
AAAS Defense Policy Fellow
Office of the Secretary of Defense, Program Analysis and Evaluation

Marvin Davis
Manpower Policy, OTSG

Paul F. Dickens III
CEO, PFDickens, LLC

Michael Paul Dinneen
Strategic Planning and Business Development, ASD(HA)

Commander David Wayne Drozd
Contingency and Planning,
Office of the Assistant Secretary of Defense (Health Affairs)

Christine E. Eibner
Associate Economist, RAND Corporation

Lieutenant Colonel Anne Espenant
Strategic Health Services Planner, Canadian Forces Health Services Group

Rachel C. Foster

Director for Program & Budget Oversight, OASD/HA, Health Budget and Financial Policy

Captain Scott E. Foster

Senior Analyst, Navy QDR, Chief of Naval Operations (N8QDR)

Luke B. Gallagher

Research Analyst, Office of Economic & Analysis

Lawrence Goldberg

Research Staff Member, Institute for Defense Analyses

Matthew S. Goldberg

Deputy Assistant Director, Congressional Budget Office

Chet A. Gooding

Deputy Assistant Surgeon General, Medical Plans and Programs
HQ USAF/SGM

C. Vance Gordon

Program Review Coordinator,
Office of the Secretary of Defense, Program Analysis and Evaluation

Major General Charles B. Green

Assistant Surgeon General, Health Care Operations
HQ USAF/SG

Colonel Mark A. Hamilton

Executive Assistant to the Surgeon General, U.S. Air Force

Nancy Harned

Deputy Head, Warfighting Support Analysis Branch
CNO N81 (Assessment Division)

Paul F. Hogan

Senior Vice President, The Lewin Group

Stanley A. Horowitz

Assistant Director, Cost Analysis and Research Division
Institute for Defense Analyses

Captain Matthew T. Hueman

Chief Resident, General Surgery, Walter Reed Army Medical Center

Stephen S. Johnston

University of Maryland Baltimore County

Commodore Margaret F. Kavanagh
Director, General Health Services/
Commander, Canadian Forces Health Services Group,
Canadian Department of National Defence

Major General Joseph E. Kelley
The Joint Staff Surgeon, Logistics Directorate, J-4, The Joint Staff

Robert A. Levy
Research Analyst, CNA Corporation

Colonel Patricia C. Lewis
Assistant Surgeon General, Medical Plans and Programs, HQ USAF/SGM

Major General Louis Patrick Lillywhite
Director General Medical Operational Capability, United Kingdom Ministry
of Defence

Lieutenant Commander Jamie Lindly
Medical Program Analyst, Chief of Naval Operations

Philip M. Lurie
Research Staff Member, Institute for Defense Analyses

Colonel Paul George Mannering
Assistant Director Medical Operations, MOD UK DMSD

Colonel Margaret B. Matarese
Chief, Aerospace Medicine Operations and Policy, USAF

Rear Admiral John M. Mateczun
Navy Deputy Surgeon General, Bureau of Medicine and Surgery

David McNicol
Research Staff Member, Institute for Defense Analyses

Lieutenant Commander Chris Meyer
Warfighter Support Analysis, Chief of Naval Operations (N814)

David T. Moonan
Office of the Chief Financial Officer, TRICARE Management Activity

Carla Tighe Murray
Senior Analyst, Congressional Budget Office

Vice Admiral Karsten O. Ocker

Surgeon General of the Bundeswehr and Chief of Medical Service Staff,
Federal Ministry of Defense of Germany

Captain Cathy Osman

Branch Head, Warfighting Support Analysis, CNO N81 Assessment
Division

Jerry Pannullo

Director, Economic and Manpower Analysis Division,
Office of the Secretary of Defense, Program Analysis and Evaluation

Colonel Keith B. Parker

Director, Combat and Doctrine Development, AMEDD Center and School

Allison Percy

Principal Analyst, National Security Division, Congressional Budget Office

Ann Reese

Director, Military Personnel and Construction Directorate
OUSD (Comptroller)

Nancy Jeanne H. Rosenberg

Senior Health Care Budget Analyst, OUSD (Comptroller)

Major Daniel Shrimpton

Analyst, Economic and Manpower Analysis Division,
Office of the Secretary of Defense, Program Analysis and Evaluation

Jean Storck

Director, Resource Management and Procurement
Office of the Assistant Secretary of Defense (Health Affairs)/
TRICARE Management Activity

Terri Tanielian

Co-Director, Center for Military Health Policy Research,
RAND Corporation

Rear Admiral Gregory A. Timberlake

Command Surgeon, U.S. Joint Forces Command

Lieutenant Commander Paul Toland

Healthcare Analyst,
Office of the Secretary of Defense, Program Analysis and Evaluation

Commander David W. Tomlinson

Medical Plans, Office of the Assistant Secretary of Defense (Health Affairs)

Karen W. Tyson

Research Staff Member, Institute for Defense Analyses

Terry J. Walters

Assistant Deputy for Health Policy,
Assistant Secretary of the Army (Manpower & Reserve Affairs)

Major General Joseph G. Webb Jr

Deputy Surgeon General, Office of The Army Surgeon General

Commander Erwin Rudolf Weissmann

Assistant Naval Attache, German Embassy

John E. Whitley

Operations Research Analyst,
Office of the Secretary of Defense, Program Analysis and Evaluation

Captain Antoinette Whitmeyer

Deputy Director, Medical Resources, Plans and Policy Division, OPNAV

William Winkenwerder Jr.

Assistant Secretary of Defense for Health Affairs

Anny Wong

Political Scientist, RAND Corporation

Rear Admiral Dennis D. Woofter, DC, USN

Deputy Director for Naval Medicine, Chief of Naval Operations (N093B)

Ed Wyatt

President, EWyatt Consulting, LLC

Maurice Yaglom

Deputy Director, Program Analysis and Evaluation,
Headquarters Department of the Army, Office of The Surgeon General

APPENDIX H: BIOGRAPHIES

Dr. Jeffrey Stuart Augenstein is currently Professor of Surgery at the University of Miami/Jackson Memorial Hospital Center in Miami, Florida. A board certified surgeon, he is the Director of the Ryder Trauma Center and Co-Chief, Division of Trauma and Critical Care Surgery. Dr. Augenstein has focused his career on the care of critically injured patients. He is the Director of the William Lehman Injury Research Center, the Medical Computer Systems Laboratory, and the Trauma Intensive Care Unit at the University of Miami School of Medicine/Jackson Memorial Medical Center. He has studied and written extensively on the disease of trauma, automobile injury mechanisms, patterns of injury and healthcare informatics. He has also worked with a variety of local, federal and other national organizations to implement his findings. As the principal investigator on a grant from the U.S. Department of Transportation, Dr. Augenstein has worked to create a national model for the prevention of automobile-related death and injury at Jackson's Ryder Trauma Center. In this capacity, he has led the creation of a medical information system to address the clinical, administrative, research and educational components of trauma. This information system serves as the backbone of a national multidisciplinary research effort addressing the epidemiology and biomechanics of automobile-related injury. He has also contributed extensively to the collection and utilization of medical and engineering data in the discovery of injury patterns. Dr. Augenstein is a founding member of the Crash Injury Research and Engineering Network, a network of multi-disciplinary, hospital-based research centers, created by the National Highway Traffic Safety Administration, examining automobile injuries and/or fatalities. Dr. Augenstein received a bachelor's degree in chemistry and a master's degree in psychology from the University of Miami, where he continued his graduate training towards both M.D. and Ph.D. degrees under the National Institutes of Health Medical Scientist Training Program.

Air Vice Marshal Tony Kenneth Austin is Director General of Defense Health Services of the Australian Department of Defence.

Prior to his current role, he served as Director of Health Services at Australia's Headquarters Air Command. He has also commanded the Institute of Aviation Medicine of the Royal Australian Air Force (RAAF) as well as 3RAAF Hospital. Air Vice Marshal Austin has been a member of the Royal Australian Air Force since 1980 when he was commissioned as an undergraduate medical officer. He has completed the United States Air Force Flight Surgeon's course and has actively provided aviation medicine support to the Australian Defence Force within Australia and overseas, including a tour of Malaysia. Air Vice Marshal Austin was made a Member of the Order of Australia in 1997 for services to aviation medicine and is a Fellow of the Royal Australian Colleges of Medical Administration and General Practice. He holds an MBBS (bachelor of medicine bachelor of surgery) with honors and master's of public health from the University of New South Wales. He also holds a diploma of administrative studies from the Royal Australian Air Force College and a diploma of aviation medicine from Otago, New Zealand.

Dr. Richard P. Burke has served as the Deputy Director for Resource Analysis in the Office of the Secretary of Defense, Program Analysis and Evaluation, and as the Chairman of the Cost Analysis Improvement Group since November 2002. He joined the Office of the Secretary of Defense in April 1988, and was Director of the Operations Analysis and Procurement Planning Division within the Office of Program Analysis and Evaluation prior to assuming his current position. Before his service in the Department of Defense, Dr. Burke served in several program management positions at Sandia National Laboratories in Albuquerque, New Mexico. He is an International Affairs Fellow of the Council on Foreign Relations and served as a visiting scholar at Stanford University during 1992-93. Educated at the Massachusetts Institute of Technology, he received a doctorate in nuclear engineering and decision analysis in 1984. His published work includes studies of the economic and international aspects of commercial nuclear power reactors, the economic risks of nuclear reactor accidents, and export controls on high-technology industries.

Dr. David S. C. Chu is the Under Secretary of Defense for Personnel and Readiness. In this capacity, he is the Secretary of

Defense's senior policy advisor on recruitment, career development, pay and benefits for active-duty, Guard, and Reserve military personnel as well as Department of Defense civilians and is responsible for overseeing the state of military readiness. He also oversees the Defense Health Program, Defense Commissaries and Exchanges, Defense Educational Activity, and Defense Equal Opportunity Management Institute. Dr. Chu earlier served in government as the Director and then Assistant Secretary of Defense for Program Analysis and Evaluation. In that capacity, he advised the Secretary of Defense on the future size and structure of the armed forces, their equipment, and their preparation for crisis or conflict. Dr. Chu has also served as the Assistant Director for National Security and International Affairs at the Congressional Budget Office, as well as in several senior executive positions with RAND Corporation, including Director of the Arroyo Center and Director of RAND's Washington Office. He holds a bachelor's degree in economics and mathematics and a doctorate in economics from Yale University. He has served in the Army, where he became an instructor at the U.S. Army Logistics Management Center; completed a tour of duty in Vietnam; worked in the Office of the Comptroller, Headquarters, 1st Logistical Command; and obtained the rank of captain. He holds the Department of Defense Medal for Distinguished Public Service with Silver Palm.

Colonel Mark A. Hamilton is the Director of Staff for the Air Force Surgeon General. In this capacity he manages the daily operation of more than 400 medical staff. Colonel Hamilton has served at the Office of the Air Force Surgeon as the Chief of the Environmental Operations Division and Consultant to the Surgeon for Bioenvironmental Engineering. He has also served with the Air Combat Command as the Chief of Aerospace Medicine Division and Chief of the Medical Modernization Division, where he provided policy and execution guidance to the Aerospace Medicine Operations at seventeen Air Combat Command Bases. In addition, he developed and then executed the first comprehensive medical modernization planning at the Air Force's largest operational command, resulting in the successful deployment of the Command Core Occupational Health Information System, the Global Expeditionary Medical System, and the RAPIDS Pathogen Analysis System. He was also the Director of International Activities and the

Acting Deputy for Force Protection within the Office of the Deputy Under Secretary of Defense for Environmental Security, where he provided oversight of the Air Force's environmental, safety, and occupational health programs and of the execution of more than \$1.5 billion. Colonel Hamilton's military decorations include the Defense Superior Service Medal, the Meritorious Service Medal (with six oak leaf clusters), and the National Defense Service Medal. He holds a B.S. in chemistry and an M.S. in industrial hygiene from the University of Florida and an M.S. and a Ph.D. in chemistry from the University of Rochester.

Commodore Margaret F. Kavanagh is Commander and Director of General Health Services of the Canadian Forces Health Services Group. A graduate of University of Western Ontario under the Medical Officer Training Plan, Commodore Kavanagh was posted to locations across Canada and to Lahr, Germany. She also served in Bahrain during the 1990 Persian Gulf Conflict. Her duties have included clinical general practice; operational medicine in the land, sea, and air environments; human physiological research following the completion of her master's degree; and medical administration. She has functioned in the capacity of a senior physician in clinic and hospital settings in Canada and Germany, as a staff officer in Headquarters, and has command experience as the Commanding Officer of a field ambulance and a Canadian field hospital. Since 1998, she has served in the Canadian Forces Health Services Group Headquarters in four different senior staff officer appointments and as the Deputy Commander for the Canadian Forces Health Services Group until her appointment as Director of General Health Services in April 2005. She is a graduate of the NATO Defense College and is a Certified Health Executive.

Major General Joseph E. Kelley is the Joint Staff Surgeon. In this capacity, he is the chief medical adviser to the Chairman of the Joint Chiefs of Staff, providing advice to the Chairman, the Joint Staff, and the Combatant Commanders. He also coordinates all issues related to operational medicine, force health protection, and readiness among the Combatant Command Surgeons, the Office of the Secretary of Defense, and the military services. He is the appointed U.S. delegate to the NATO Council of Medical Directors,

and he is involved in other international medical relationships. Prior to assuming his current position, General Kelley was Assistant Surgeon General for Healthcare Operations at the Office of the Surgeon General. He has also served as Command Surgeon for the Pacific Air Forces, Chief of Medical Resources in the Office of the Surgeon General, Commander of the Ehrling Berquist Hospital at Offutt Air Force Base in Nebraska, and Chief of Hospital Services at Misawa Air Base in Japan. General Kelley has twice been selected as the Strategic Air Command's Outstanding Medical Leader. As Commander of the Wright-Patterson Medical Center at Wright-Patterson AFB, Ohio, and Lead Agent, Department of Defense Health Region 5, General Kelley's unit received Defense Department awards for patient satisfaction and access, and a Commander Installation Excellence Unit Award. General Kelley received his bachelor's degree from the U.S. Air Force Academy and his doctor of medicine degree at Rush University Medical School. He is also a distinguished graduate of the Aerospace Medicine Primary Course. General Kelly has had academic appointments as clinical professor and assistant dean, and has taught advanced trauma life support, advanced cardiac life support, and emergency medical technician courses.

Major General Louis Lillywhite is the Director General of Medical Operational Capability of the United Kingdom's Defence Medical Services Department. In this capacity, he has commenced a study of the UK's operational medical services from point of wounding to return to duty or discharge from active duty. Prior to his current position, he was Director General of the UK's Army Medical Services. He has also served as the Head of the Medical Personnel Branch and as a member of the Defence Cost Study Implementation Team that significantly reduced the size of and reorganized the UK's medical services. In that capacity, he was responsible for negotiating the integration of a UK Army Hospital into its neighboring NHS Hospital and for the rationalization of medical training on a tri-service basis. As the Director of Medical Personnel, Training and Clinical Policy in the tri-service Surgeon General's Department, he initiated modernization of terms and conditions of service for medical and dental officers. He also led the medical effort on depleted uranium (DU), and was responsible for the two public consultations that led to the current UK retrospective

DU testing program. He was then appointed the first uniformed Director of British Forces Health Service, responsible for about 55,000 UK personnel in Germany. Other appointments have included Officer in Charge and Acting Chief Instructor at the Medical Services Training Centre, a part-time appointment to Technical Intelligence Army, Deputy Assistant Chief of Staff at the headquarters of the Field Army and Chief Medical Adviser at the headquarters of allied forces in northwestern Europe. He has participated in many overseas Army, Joint, and Combined exercises in Malaysia, Oman, Iraq, Belize, Jamaica, Falkland Islands, Turkey, and Northwestern Europe. Major General Lillywhite trained in Cardiff. His clinical specialty is Occupational Medicine. He attended the junior division of the Staff College and graduated from the Army Staff College. He completed an M.S. in 1989 at London University, where he won the prize for top student. He is a member of the Faculty of Occupational Medicine of the Royal College of Physicians, of the Society of Occupational Medicine, of the Royal Society of Medicine, and of the Medical Society of London, where he has been appointed Senior Secretary.

Rear Admiral John M. Mateczun is the Deputy Surgeon General of the Navy and Vice Chief of the Bureau of Medicine and Surgery. Prior to his current role, he commanded the Naval Medical Center in San Diego. Under his leadership, the Medical Center deployed over 1,000 personnel in support of Operations Iraqi Freedom, Enduring Freedom, and Unified Assistance; it also received, treated, and rehabilitated over 200 wounded Marines and Sailors. Rear Admiral Mateczun has served in a variety of other military medical roles during his career. As the Joint Staff Surgeon and Medical Advisor to the Chairman of the Joint Chiefs of Staff, he was the U.S. delegate to the NATO Committee of Chiefs of Medical Services. At the Navy Bureau of Medicine and Surgery, he has held responsibility for health care delivery in the Navy's direct care system of 25 hospitals and 135 medical and branch clinics. As the first Chief Medical Officer for the TRICARE Management Activity, he was a key player in that agency's initial organizational efforts. At the Department of Defense, he was Principal Director for Clinical Services, where his duties included policy formulation on clinical matters, including graduate medical education, quality management, military public health, and health promotion in the \$15 billion

Defense Health Program, providing health services to 8.1 million beneficiaries. Rear Admiral Mateczun's awards include the Navy Distinguished Service Medal, Defense Superior Service Medal (with oak leaf cluster), Legion of Merit (with two gold stars), Bronze Star, Defense Meritorious Service Medal, Meritorious Service Medal (with gold star), Navy/Marine Corps Commendation Medal, Army Commendation Medal, and Navy/Marine Corps Achievement Medal. He is a Distinguished Fellow of the American Psychiatric Association and has been an examiner for the American Board of Psychiatry and Neurology. He has an academic appointment as Associate Professor of Clinical Psychiatry at the Uniformed Services University of the Health Sciences. He earned his bachelor's and doctor of medicine degrees at the University of New Mexico and completed his postgraduate training in psychiatry at the Naval Regional Medical Center in Oakland, California. He also holds a master's of public health from the University of California, Berkeley. During his off-duty hours, he completed requirements for a law degree at Georgetown University Law Center.

Vice Admiral MC Karsten O. Ocker is the Chief of Medical Staff and Surgeon General of the German Bundeswehr. He has also served as the Deputy Surgeon General of the Bundeswehr, Commander of Regional Medical Command I in Kiel, Germany, Surgeon General of the German Navy, and Branch Chief of the Office of the Surgeon General of the German Federal Ministry of Defense. Prior to those roles, he was the Command Surgeon for Regional Command I/6 of the Armored Infantry Division in Kiel and for the Territorial Command at Schleswig-Holstein. Upon completion of the U.S. Navy Flight Surgeon Course at Pensacola, Florida, he served as a Flight Surgeon in the German Navy. He has also served as a Squadron Surgeon in the 1st Submarine Squadron in Kiel. His decorations include the Bronze Cross of Honor of the Bundeswehr, Order of Merit of the Federal Republic of Germany, Silver Cross of Honor of the Bundeswehr, Gold Cross of Honor of the Bundeswehr, and Officer of the French Legion of Honor. He studied at the Medical Universities in Kiel, Wien, and Lübeck, Germany. He completed his residency in Traumatology at the Medical University of Hannover and another residency in Internal Medicine at Cuxhaven for Qualification in Occupational Medicine and Emergency Medicine.

Major General Joseph G. Webb Jr. became the Army's Deputy Surgeon General and Chief of Staff of the U.S. Army Medical Command in June 2004. Major General Webb served as Senior Dental Corps Staff Officer at the Office of the Surgeon General, Commander of the U.S. Army Dental Command, Fort Sam Houston, Texas, and Deputy Chief of Staff and Assistant Surgeon General for Force Sustainment at Fort Sam Houston, Texas. He has also served as Commanding General of the Pacific Regional Medical Command, Commanding General of the Tripler Army Medical Center, Command Surgeon of the U.S. Army Pacific, Lead Agent of TRICARE Region 12, Director of Health Services for the U.S. Army Hawaii, Regional Coordinator for Tripler Army Health Services Region, PROFIS Commander of the 18th MEDCOM, and Chief of the Army Dental Corps. His military awards include the Legion of Merit (with five oak leaf clusters), the Meritorious Service Medal (with one oak leaf cluster), the Army Commendation Medal, the Army Achievement Medal, the National Defense Service Medal with two stars, the Army Service Ribbon, and four Overseas Service Ribbons. He has held various command, staff, teaching, and research positions in the Army Dental Corps. He is a graduate of the Army's Command and General Staff College and the United States Army War College. He completed his Oral Pathology Residency at the United States Army Institute of Dental Research and Armed Forces Institute of Pathology in Washington, D.C. MG Webb received his bachelor's of science degree from Furman University in Greenville, South Carolina, his doctor of dental medicine degree from the Medical University of South Carolina, and his master's of science in special studies degree from The George Washington University in Washington, D.C.

Dr. William Winkenwerder has served as the Assistant Secretary of Defense for Health Affairs since 2001. In that capacity, he is responsible for overall supervision of the health and medical affairs of the Department of Defense (DoD). He serves as the principal adviser to the Secretary of Defense for all DoD health policies, programs, and activities, and he exercises oversight of all DoD health resources. The mission of the Military Health System (MHS) is to ensure the nation has available at all times a healthy fighting force supported by a combat-ready healthcare system; and it is to provide a cost-effective, quality health benefit to active-duty

members, retirees, survivors, and their families. The MHS provides medical care for 9.1 million beneficiaries through a \$33 billion healthcare system consisting of a worldwide network of 76 military hospitals, more than 500 military health clinics, and the Department's extensive private-sector health care partners. A graduate of Davidson College, and the University of North Carolina School of Medicine, Dr. Winkenwerder completed his residency in Internal Medicine at North Carolina Memorial Hospital. He is board certified in internal medicine. He also completed a fellowship in epidemiology and health services research at the University of Pennsylvania and received his master's of business administration from The Wharton School at the University of Pennsylvania. Dr. Winkenwerder came to the Pentagon after 13 years of executive leadership positions in the healthcare industry. Most recently, he was Vice Chairman, Office of the Chief Executive, and Executive Vice President of Health Care Services for Blue Cross Blue Shield of Massachusetts. He also held senior positions at Emory University and Prudential Health Care and practiced primary care medicine.

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